

Acronyms and Glossary of Terms

Acronyms

ADA	—Americans with Disabilities Act	NIDOC	—National Institute on Deafness and Other Communication Disorders
ADAMHA	—Alcohol, Drug Abuse, and Mental Health Administration	NIDR	—National Institute of Dental Research
APA	—American Psychiatric Association	NIEHS	—National Institute on Environmental Health Sciences
APA	—American Psychological Association	NIMH	—National Institute of Mental Health
APS	—American Psychological Society	NINDS	—National Institute of Neurological Disorders and Stroke
CAT	—computerized axial tomography	NMHA	—National Mental Health Association
CDC	—Centers for Disease Control	NSF	—National Science Foundation
CSF	—cerebrospinal fluid	OCD	—obsessive-compulsive disorder
D/ART	—DEPRESSION Awareness, Recognition and Treatment	PCP	—phencyclidine
DBBBS	—Division of Basic Brain and Behavioral Sciences	PET	—positron emission tomography
DCR	—Division of Clinical Research	PHS	—U.S. Public Health Service
DHHS	—U.S. Department of Health and Human Services	PKU	—phenylketonuria
DOD	—Department of Defense	RDC	—Research Diagnostic Criteria
DOE	—Department of Energy	REM	—rapid eye movement
DSM-III	—Diagnostic and Statistical Manual of Mental Disorders, 3rd edition	SAD	—seasonal affective disorder
DSM-III-R	—Diagnostic and Statistical Manual of Mental Disorders, 3rd edition, revised	SAMHSA	—Substance Abuse and Mental Health Services Administration
DST	—dexamethasone-suppression test	SPECT	—single photon emission computed tomography
ECA	—Epidemiologic Catchment Area	SPEM	—smooth-pursuit eye movements
ECT	—electroconvulsive therapy	UAGA	—Uniform Anatomical Gift Act
EEG	—electroencephalograph	USDA	—U.S. Department of Agriculture
ELSI	—Ethical, Legal, and Social Implications	VA	—Department of Veterans Affairs
FCCSET	—Federal Coordinating Council for Science, Engineering, and Technology		
FDA	—U.S. Food and Drug Administration		
GABA	—gamma aminobutyric acid		
IRB	—institutional review board		
LSD	—lysergic acid diethylamide		
MAOI	—monoamine oxidase inhibitors		
MRI	—magnetic resonance imaging		
NAMI	—National Alliance for the Mentally Ill		
NARSAD	—National Alliance for Research on Schizophrenia and Depression		
NASA	—National Aeronautics and Space Administration		
NCI	—National Cancer Institute		
NE	—norepinephrine		
NEI	—National Eye Institute		
NIA	—National Institute on Aging		
NIAAA	—National Institute on Alcohol Abuse and Alcoholism		
NICHHD	—National Institute on Child Health and Human Development		
NIDA	—National Institute on Drug Abuse		

Glossary

Acetylcholine: A chemical messenger in the nervous system. See *neurotransmitter*.

Adoption study: The attempt to separate the influence of genes from that of the environment by comparing the presence of a trait in biological versus adoptive family members. Compare *family study*, *twin study*.

Affective disorder: See *mood disorder*.

Agoraphobia: Fear of being in public places from which escape might be difficult. This condition frequently accompanies panic disorder. See *panic disorder*.

Allele: A version of a gene at a particular locus on the chromosome; one allele is inherited from each parent. If the two alleles at a locus are identical, the organism is homozygous for that gene; if they are different, heterozygous. See *genotype*, *phenotype*.

Animal model: An animal that shares, or in which can be replicated or approximated, features of human disorders and that is used in studies of these disorders. Although animal models cannot duplicate human mental disorders completely, they can be used to study basic brain structure and functions, mechanisms that may contribute to particular symptoms, hypothesized

causes of a disorder, and drugs for treatment of the disorder.

Animal rights: The concept that animals have intrinsic rights that are equal to humans' rights. Compare *animal welfare*.

Animal welfare: In the context of scientific research, provision of proper food, shelter, care, and treatment of animals used in experiments. Compare *animal rights*.

Antianxiety drug: Medication, such as benzodiazepines, used to treat symptoms of anxiety disorders.

Antidepressant: Medication used to treat depressive symptoms. See *tricyclic antidepressant*, *monoamine oxidase inhibitor (MAOI)*, *fluoxetine*.

Antipsychotic, antipsychotic drug: Medication used to treat psychosis, for example in schizophrenia. See *chlorpromazine*, *clozapine*.

Anxiety: Commonly experienced apprehension, tension, or uneasiness from anticipation of danger, the source of which is largely unknown or unrecognized. See *anxiety disorder*.

Anxiety disorder: Any of several mental disorders characterized by anxiety, including agoraphobia, obsessive-compulsive disorder, and panic disorder. See *agoraphobia*, *anxiety*, *obsessive-compulsive disorder*, *panic disorder*.

Autoreceptor: A protein (receptor) in the wall of a nerve cell that binds a neurotransmitter released by that cell. Autoreceptors act as a feedback mechanism to regulate a neuron's activity. See *neurotransmitter*; compare *receptor*.

Axon: The long extension of a nerve cell along which electrical impulses travel. See *neuron*.

Basal ganglia: A group of nuclei in the upper part of the brain that, among other functions, help mediate movement. See *nuclei*.

Base pairs: Two complementary nucleotides held together by weak bonds. Two strands of DNA are held together in the shape of a double helix by the bonds between base pairs. The base adenine pairs with thymine, and guanine pairs with cytosine. See *DNA*.

Behavioral sensitization: The increasing response of a laboratory animal to repeated administration of the same dose of a stimulant drug. Compare *kindling*.

Behavioral therapy: A form of psychotherapy that focuses on modifying faulty behavior rather than basic changes in the personality. Instead of probing the unconscious or exploring the patient's thoughts and feelings, behavior therapists seek to eliminate symptoms and to modify ineffective or maladaptive patterns by applying basic learning techniques and other methods. (Examples: relaxation therapy, self-control therapy, social skills training.) This mode of treatment is used for depression and obsessive-compulsive disorder.

Benzodiazepines: A class of drugs used to treat some anxiety disorders by increasing the action of the inhibitory neurotransmitter GABA. See *anxiety disorder*, *GABA*, *neurotransmitter*.

Biological rhythm: Change in a physiological or behavioral function that repeats at regular intervals and provides a framework of temporal organization for an organism. Alterations in biological rhythms have been associated with mood disorders. See *circadian rhythm*, *mood disorder*.

Bipolar disorder: A severe mood disorder characterized by manic and major depressive episodes, with periods of recovery generally separating the mood swings. Psychosis may be present during manic episodes. Bipolar disorder usually begins in the mid 20s and is chronic. See *depression*, *mania*, *mood disorder*; compare *major depression*.

Candidate gene: A gene suspected of causing or being otherwise closely linked to a disorder the location of the gene is then sought by linkage analysis. See *linkage analysis*.

Catecholamine: A class of neurotransmitter including norepinephrine, epinephrine, and dopamine. See *dopamine*, *neurotransmitter*, *norepinephrine*.

Causative factor: The biological substance or activity that causes a disorder. Compare *correlated factor*.

Cerebral cortex: The upper portion of the brain, consisting of layers of neurons and the pathways connecting them. The cerebral cortex is divided into four lobes on each side and is the part of the brain responsible for higher-order thinking and decisionmaking.

Cerebrospinal fluid (CSF): Fluid manufactured in the brain and contained within the brain and spinal cord; it circulates in the central nervous system.

Chlorpromazine, Thorazine: A traditional antipsychotic drug, first introduced in the 1950s, used to treat psychotic symptoms. Chlorpromazine can produce side effects typical of traditional antipsychotic drugs. See *antipsychotic*, *traditional antipsychotic drugs*.

Chromosome: The rod-shaped body that contains genes and intervening regions of DNA that do not code for proteins. Each human cell except gametes (eggs and sperm) contains 23 pairs of chromosomes: 22 pairs of autosomes and one set of sex chromosomes. See *DNA*, *gene*.

Circadian rhythm: A biological rhythm, such as body temperature, that repeats approximately every 24 hours. See *biological rhythm*.

Clomipramine, Anafranil: A medication commonly used to treat obsessive-compulsive disorder; it inhibits the reuptake of the neurotransmitter serotonin. See *serotonin*.

Clozapine, Clozaril: A newer antipsychotic agent used to treat symptoms of schizophrenia in persons who do not respond to traditional antipsychotic drugs. Clozapine ameliorates both positive and negative symptoms of

schizophrenia; it does not seem to produce tardive dyskinesia. Clozapine can result in agranulocytosis, a potentially fatal decrease in the number of white blood cells, which fight infection. See *antipsychotic, tardive dyskinesia, traditional antipsychotic drugs*.

Cognition: The processing of information by the brain; specifically, perception, reasoning, and memory.

Cognitive therapy: A psychotherapeutic approach based on the concept that emotional problems are the result of faulty ways of thinking and distorted attitudes toward oneself and others. The therapist takes the role of an active guide who helps the patient correct and revise his or her perceptions and attitudes by citing evidence to the contrary or eliciting it from the patient. The therapist uses cognitive and behavioral techniques to correct distortions of thinking associated with depression, that is, pessimism about oneself, the world, and the future. Brief treatment.

Comorbidity: The occurrence of two or more mental disorders at the same time. The disorders may occur independently of each other, or one may occur as a consequence of the other.

Compulsion: An insistent, intrusive, and unwanted action that is repeated over and over. See *obsessive-compulsive disorder*.

Computerized axial tomography (CAT): A type of imaging used to scan the living brain that uses computers to combine series of x-rays; CAT scans provide clearer pictures of the brain than x-rays alone.

Correlated factor: A biological substance or activity that is linked to a disorder and may result in some of its symptoms. Compare *causative factor*.

Corticotropin-releasing factor: A hormone produced by the brain that controls cortisol levels; elevated levels appear to be associated with depression.

Delusion: A belief that is clearly implausible but compelling and central to an individual's life.

Dendrite: One of several branched fibers extending out of a nerve cell that receives impulses from another neuron. See *neuron*.

Depression: When used to describe a mood, depression is characterized by feelings of sadness or dejection. Depression may be a symptom seen in a variety of disorders, including bipolar disorder and major depression, and be characterized by extreme feelings of sadness or irritability, inactivity, withdrawal from society, and difficulty concentrating. See *bipolar disorder, major depression*.

Dexamethasone-suppression test (DST): Developed as a test of hormone functioning, it has been studied as a possible diagnostic tool in depression. In healthy individuals, administration of the drug dexamethasone suppresses the concentration of cortisol in the blood. Approximately 40 to 50 percent of persons diagnosed with major depression have an abnormal DST in that

they do not suppress cortisol in response to dexamethasone. See *depression*.

DNA (deoxyribonucleic acid): The molecule that encodes genetic information. DNA is a double-stranded helix held together by weak bonds between base pairs of nucleotides. See *base pairs, chromosome, gene*.

Dopamine: A chemical messenger in the brain. This neurotransmitter appears to play some role in schizophrenia and perhaps other mental disorders. See *neurotransmitter, schizophrenia*.

Electroconvulsive therapy (ECT): Electric shock treatments used to treat persons with severe depression.

Electroencephalograph (EEG): An instrument for measuring electrical waves generated by neurons in the brain.

Eugenics: Attempts to improve inherited qualities through selective breeding. Positive eugenics is the systematic attempt to increase the transmission of desired traits by promoting the reproduction of individuals carrying the genes for such traits; negative eugenics is the systematic attempt to minimize the transmission of undesirable traits by preventing or reducing the reproduction of individuals carrying the genes for such traits.

Family study: The attempt to determine whether a trait runs in a family, and thus maybe heritable, by studying as many members of the family as possible in several generations. Compare *adoption study, twin study*.

Fluoxetine, Prozac: The most widely prescribed antidepressant in the United States, it acts on the neurotransmitter serotonin. Prozac produces fewer serious side effects than MAOIs or tricyclic antidepressants. Side effects associated with Prozac include nausea, tremor, insomnia, nervousness, and occasionally agitation or anxiety. See *antidepressant, serotonin*.

GABA (gamma aminobutyric acid): A major neurotransmitter implicated in anxiety disorders. See *anxiety disorder, neurotransmitter*.

Gene: The fundamental physical and functional unit of heredity. Each gene is made up of an ordered sequence of base pairs, is located on a particular position on a particular chromosome, and codes for (determines the structure of) a particular protein. See *base pairs, DNA, chromosome, protein*.

Genetic counseling: A clinical service that provides an individual, and sometimes his or her family, with information about heritable conditions. At present, genetic counseling can provide only a general estimate of risk for a mental disorder, not an accurate assessment of individual risk.

Genetic heterogeneity: The phenomenon whereby a disorder is caused by one gene in some individuals but a different gene in other individuals.

Genotype: The genetic constitution of an organism. Compare *phenotype*.

Glutamate: A neurotransmitter that stimulates nerve cells and may play a role in certain mental disorders. See *neurotransmitter*.

Hallucination: A perception without an objective basis, often an imaginary voice, vision, taste, or smell.

Hippocampus: A nucleus in the brain crucial to learning and memory; part of the limbic system. See *limbic system, nuclei*.

Hypothalamus: A group of nuclei in the brain that regulate hormones and such behaviors as eating, drinking, and sex. See *nuclei*.

Incomplete penetrance: Failure of a trait to be expressed, even though the gene coding for it is present.

Informed consent: The agreement of a person to participate as a subject in an experimental procedure after rationally weighing the possible benefits and risks of the procedure. The nature of some mental disorders may render individuals incompetent to give informed consent and, therefore, unable to participate in research projects.

Interpersonal psychotherapy: A form of psychotherapy in which the therapist seeks to help the patient to identify and better understand his or her interpersonal problems and conflicts and to develop more adaptive ways of relating to others. The therapist focuses on client's current interpersonal relationships. Helps clients learn more effective ways of relating to others and coping with conflicts in relationships. Brief, focused treatment.

Kindling: The creation of seizures in an area of the brain by subjecting it to repeated, low-level electrical stimulation; eventually, the area becomes so sensitive that seizures will occur spontaneously, with no electrical stimulus. Compare *behavioral sensitization*.

Limbic system: A network of structures in the brain (including the hippocampus and part of the temporal lobes) associated with control of emotion and behavior, specifically, perception, motivation, gratification, memory, and thought. See *hippocampus*.

Linkage analysis: A technique for determining whether a major gene produces a trait and, if so, where on the chromosomes that gene is located (but not which gene it is or what its function is). Linkage analysis uses markers (such as genetic traits or DNA sequences) whose loci are known and calculates the probability that the loci for the marker and the gene being sought are linked.

Lithium carbonate: The most common medication used to treat bipolar disorder, lithium is used to diminish manic symptoms and to prevent future episodes. Side effects include increased thirst and urination, memory problems, tremor, and weight gain. Long-term treatment, which is commonly required, can have toxic effects on the thyroid gland, the kidneys, and the nervous system; lithium can also cause fetal abnormalities.

Locus ceruleus: A nucleus in the brain that is involved in, among other things, the body's response to stressful situations, such as the fight-or-flight response. See *nuclei*.

Magnetic resonance imaging (MRI): A technique that constructs images of the living human brain by detecting molecular changes in neurons exposed to a strong magnetic field.

Major depression: A mood disorder characterized by profound depression, that is, complete loss of interest or pleasure in activities. Other common symptoms include weight gain or loss, insomnia or excessive sleepiness, slowed or agitated movement, intense feelings of guilt or worthlessness, diminished ability to concentrate, and recurrent thoughts of death or suicide. Bouts of depression commonly recur. Psychosis may also accompany major depression. The typical age of onset is the late 20s. See *mood disorder*; compare *bipolar disorder*.

Mania: A mood disorder characterized by expansiveness, elation, talkativeness, hyperactivity, and excitability. See *bipolar disorder*.

Manic depression, manic-depressive disorder: See *bipolar disorder*.

Melancholia: A severe form of depression in which there is a nearly complete loss of interest or pleasure in activities, accompanied by somatic symptoms such as weight loss and early morning waking.

Metabolize: A compound that results from the chemical breakdown of a neurotransmitter in the space between nerve cells. See *neurotransmitter*.

Monoamine: A group of neurotransmitters; namely, norepinephrine, epinephrine, serotonin, and dopamine. See *dopamine, neurotransmitter, norepinephrine, serotonin*.

Monoamine oxidase inhibitor (MAOI): A class of antidepressants that acts by prolonging monoamine activity; generally used to treat persons who do not respond to tricyclic antidepressants. MAOIs can interact with certain foods and other medications to produce potentially fatal hypertension. See *monoamine*.

Mood disorder: A mental disorder characterized by extreme or prolonged disturbances of mood, such as sadness, apathy, or elation. Mood disorders are divided into two major groups: bipolar, or manic-depressive, disorders, characterized by depression and mania; and unipolar, or depressive, disorders, characterized by depression only. See *major depression, bipolar disorder*.

Negative eugenics: See *eugenics*.

Neuroendocrine system: Hormones that influence the activity of neurons and glands. Many symptoms associated with depression may be related to changes in the hormones secreted by these glands, particularly the pituitary, adrenal, and pineal glands.

- Neuron, nerve cell:** The basic functional unit of the nervous system, neurons carry on information processing in the brain. The neuron consists of a relatively compact cell body containing the nucleus, several branched extensions (dendrites), and a single long fiber (the axon) with twig-like branches along its length and at its end. Information in the form of electrical impulses generally travels from the dendrites, through the cell body, and along the axon to other cells via neurotransmitters. See *axon, dendrite, neurotransmitter*.
- Neuroscience:** The study of the nervous system and how it is affected by disease. Neuroscience draws from numerous fields, including anatomy, physiology, physics, electronics, genetics, biochemistry, optics, pharmacology, psychology, neurology, psychiatry, neurosurgery, and computer science, and is based on the concept that behavior, thought, and emotion are the result of nerve cell interaction.
- Neurotransmitter:** Specialized chemical messenger synthesized and secreted by neurons to communicate with other neurons. A neurotransmitter is released into the space between neurons (synapse), moves across that space, and attaches (binds) to a specific protein (receptor) in the outer wall of a neighboring neuron. Some neurotransmitters stimulate the release of neurotransmitters from other neurons (excitatory neurotransmitters), while others inhibit the release of neurotransmitters from other neurons (inhibitory neurotransmitters). See *neuron, receptor*.
- Non-REM sleep:** The four stages of sleep during which the sleeper does not experience rapid eye movement. Compare REM sleep.
- Norepinephrine:** A chemical messenger in the brain. Alterations in this neurotransmitter have been implicated in several mental disorders. See *neurotransmitter*.
- Nuclei, nucleus:** Groups of neurons in the brain that are located in the same region and that share, to varying degrees, the same function. Axons extending from nuclei convey information between and among nuclei throughout the brain. See *neuron*.
- Obsession:** Irrational thought, image, or idea that is irresistible and recurrent, if unwanted. See *obsessive-compulsive disorder*.
- Obsessive-compulsive disorder (OCD):** A mental disorder characterized by recurrent and persistent thoughts, images, or ideas perceived by the sufferer as intrusive and senseless (obsessions) and by stereotypic, repetitive, purposeful actions perceived as unnecessary (compulsions). The average age of onset is 20. OCD is generally chronic, with symptoms waxing and waning. The disorder frequently occurs with depression and Tourette's syndrome, a neurological disorder. See *anxiety disorder, depression*.
- Panic disorder:** A mental disorder characterized by sudden, inexplicable bouts, or attacks, of intense fear and strong bodily symptoms, namely, increased heart rate, profuse sweating, and difficulty breathing. Panic attacks occur twice a week, on average. The disorder is usually chronic, with symptoms waxing and waning, and the average age of onset is 24. Antidepressants and anti-anxiety drugs, as well as psychotherapy, are often used to treat panic disorder. See *anxiety disorder*.
- Peptides, neuropeptides:** Chemicals, including some hormones, that act as messengers in the brain. Neuropeptides modulate the activity of many other neurotransmitters. See *neurotransmitter*.
- Phenocopy:** Nongenetic production of the symptoms of a disorder that mirror those of the genetically derived disorder.
- Phenotype:** The manifestation of a genetic trait. See *allele, genotype*.
- Positive eugenics:** See *eugenics*.
- Positron emission tomography (PET):** Imaging technique that creates computerized images of the distribution of radioactively labeled materials in the brain in order to show brain activity. PET scans of labeled drugs that attach to specific receptors show the distribution and number of those receptors.
- Protein:** A large molecule composed of chains of smaller molecules (amino acids) in a specific sequence, proteins are required for the structure, function, and regulation of the body's cells, tissues, and organs. Each protein has a unique function. Examples are hormones, enzymes, and antibodies.
- Psychodynamic psychotherapy:** Any form or technique of psychotherapy that focuses on the underlying, often unconscious factors (drives and experiences) that determine behavior and adjustment.
- Psychopharmacology:** The study of the action of drugs on the mind.
- Psychosis:** A mental state characterized by extreme impairment of the sufferer's perception of reality, including hallucinations, delusions, incoherence, and bizarre behavior. Psychosis is a prominent symptom of schizophrenia. See *delusion, hallucination, schizophrenia*.
- Raphe nuclei:** The major serotonin-containing nuclei in the brain, they regulate sleep and are involved with behavior and mood. See *nuclei*.
- Receptor, receptor molecule:** Protein embedded in the wall of nerve cells that binds neurotransmitters. Each receptor binds a specific neurotransmitter, thereby turning a particular biochemical or cellular mechanism on or off. Receptors are generally found in the dendrites and cell body of neurons. See *dendrite, neuron, neurotransmitter*; compare *autoreceptor*.
- Recombination:** The exchange of segments of chromosomes during the production of egg and sperm; the exchange site is called crossover.

REM (rapid eye movement) sleep: Stage of sleep during which the eyes move rapidly, brain activity resembles that observed during wakefulness, heart rate and respiration increase and become erratic, and vivid dreams are frequent. Compare *non-REM sleep*.

Reuptake: Removal of a neurotransmitter from the synapse by the neuron that released it. Compare *metabolize*; see *neurotransmitter, synapse*.

Schizoaffective disorder: A mental disorder involving symptoms of both schizophrenia and mood disorders. See *mood disorder, schizophrenia*.

Schizophrenia: A mental disorder characterized by disturbance of cognition, delusions and hallucinations, and impaired emotional responsiveness. The disorder consists of positive symptoms (delusions, hallucinations, illogical thought, and bizarre behavior) and negative symptoms (blunting of emotion, apathy, and social withdrawal). The positive symptoms of schizophrenia are also typical of psychosis. Schizophrenia usually begins in the late teen years or the early 20s. The disorder cannot now be cured or prevented, but its symptoms can be treated. See *psychosis*.

Seasonal affective disorder (SAD): A depressive disorder in which the onset of depression occurs during the winter months, with remission or mania during the spring. Symptoms of SAD are generally treated with phototherapy, that is, bright artificial light in the early morning, in the evening, or at both times.

Sensitization: See *behavioral sensitization, kindling*.

Serotonin: A chemical messenger in the brain. This neurotransmitter has been implicated in several mental disorders, including mood disorders. See *mood disorder, neurotransmitter*.

Single photon emission computed tomography (SPECT): An imaging technique that shows brain activity by tracking the distribution of radioactively labeled substances in the brain.

Somatic: Physical, as opposed to mental; for example, somatic symptoms of a mental disorder.

Substance abuse: A maladaptive pattern of psychoactive substance use indicated by either: 1) continued use despite knowing that it causes or exacerbates a persistent or recurrent social, occupational, psychological, or physical problem, or 2) recurrent use in situations in which it creates a physical hazard (such as driving when intoxicated). Abuse refers to relatively mild, transient symptoms. Compare *substance dependence*.

Substance dependence: Impaired control over use of a psychoactive substance and continued use of the

substance despite adverse consequences. Dependence can include physiological tolerance to a substance and is more serious and persistent than substance abuse.

Compare *substance abuse*.

Supportive psychotherapy: A treatment technique that helps a patient reduce stress and cope with his or her disorder without probing disturbing thoughts or emotions. Compare *behavioral therapy, cognitive therapy, interpersonal psychotherapy, psychodynamic psychotherapy*.

Synapse: The site at which an impulse is transmitted from the axon of one nerve cell to the dendrite of another nerve cell, typically by a neurotransmitter. See *neurotransmitter*.

Tardive dyskinesia: A side-effect of traditional antipsychotic drugs. This side-effect, which involves abnormal involuntary movements of the face, tongue, mouth, fingers, upper and lower limbs, and occasionally the entire body, usually appears after taking the drug for some time and occurs in at least a mild form in 25 to 40 percent of patients on antipsychotic agents. Tardive dyskinesia may be severe or irreversible in 5 or 10 percent of cases. See *traditional antipsychotic drugs*.

Traditional antipsychotic drugs, Typical antipsychotic drugs: Medication used to treat psychosis, for example in schizophrenia. These medications can have various side effects including dry mouth, constipation, blurring of vision, weight gain, restlessness, and tremor. The most serious side effect is tardive dyskinesia. Traditional antipsychotic drugs were introduced for the treatment of psychosis in the 1950s and act by binding to a dopamine receptor (D2). See *chlorpromazine, tardive dyskinesia*.

Trait: A genetically determined characteristic. See *allele, genotype, phenotype*.

Tricyclic antidepressant: Traditional medication for depression that acts by blocking reuptake of monoamine. Side effects include dry mouth, constipation, sedation, nervousness, weight gain, and diminished sex drive. See *monoamine*.

Twin study: The attempt to determine whether a trait is genetic by comparing how often identical twins (sharing the same genes) who are raised in the same environment share that trait with how often fraternal twins (having different genes) raised in the same environment share the trait. A high rate of trait-sharing among identical, but not among fraternal, twins usually demonstrates that the trait is genetic. Compare *adoption study, family study*.