



**433 Teams**

# PSYCHIATRY

## Introduction & Review

### Lecture contents:

- Introduction to psychiatry
- Diagnosis and classification in psychiatry
- Etiology in psychiatry
- Review of neuroanatomy and neurophysiology
- Review of neurotransmitters
- Clinical psychology

Manual of Basic Psychiatry

Doctor's notes

important

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## Introduction to Psychiatry:

Psychiatry is a medical discipline concerned with the provision of bio-psychosocial assessment and management of mental disorders. It links medicine, psychology and sociology together.

	Negative attitude	Positive attitude
Etiology	Vague/due to poor adherence to religion/always due to supernatural causes	Many aspects have been scientifically explored & approved >>> good Rx
Diagnosis	Subjective / unscientific.	Objective criteria & Scales.
Medications	Deleterious / addictive.	Benefit > risk in general.
Prognosis	Always bad.	There are many disorders with good prognosis.
Patients	Mad / bad / sad / aggressive / not easy to like / have low faith in Allah.	Human beings deserve respect.
Clinicians	Mentally unstable because of patients.	Like other clinicians but some may.. !?

## Diagnosis and classification in psychiatry

Significance of diagnosis and classification:

1. To distinguish one diagnosis from another.
2. To enable clinicians to communicate with one another about dx, treatment, and prognosis.
3. To ensure that psychiatric research can be conducted with comparable groups of patients.

Organic classification	Functional classification
Psychiatric disorders characterized by neurocognitive structural brain pathology that can be detected by clinical assessment or usual tests.	No obvious structural brain pathology.
<b>Examples:</b> delirium, dementia, substance-induced mental disorders, and medication-induced mental disorders.	<b>Examples:</b> schizophrenia, mood disorders, anxiety disorders, adjustment disorders.
<b>Features Suggestive of Organic Mental Disorders (CNS pathology):</b>	
<ul style="list-style-type: none"> <li>• Disturbed consciousness +/- other cognitive disturbance in: attention, concentration, orientation or memory.</li> <li>• Physical illness (e.g. diabetes, hypertension).</li> <li>• Vital signs disturbances (e.g. fever, high BP).</li> <li>• Neurological features (e.g. ataxia, dysarthria).</li> </ul>	

### Psychosis vs. Neurosis Classification

Although this classification is no longer used in the official current systems of classification (DSM & ICD), in everyday clinical practice these terms are still used widely; hence it is of practical value to know this distinction.

Psychoses (Pleural of psychosis)	Neuroses (Pleural of neurosis)
Mental disorders in which the patient lacks insight and is unable to distinguish between subjective experience and external reality, as evidenced by disturbances in thinking (delusions), perception (hallucinations), or behavior (e.g. violence).	Generally less severe forms of psychiatry disorders in which the patient is able to distinguish between subjective experience and external reality. No lack of insight, delusions or hallucinations.
<b>Examples:</b> schizophrenia, severe mood disorders, and delusional disorders. It can be due to an organic cause (organic psychosis) e.g. delirium, dementia, substance abuse, head injury.	<b>Examples:</b> dysthymic disorder, anxiety, panic & phobic disorders.
<b>Features are abnormal in quality (e.g. delusions, hallucinations).</b>	<b>Features are abnormal in quantity (e.g. excessive fear and avoidance).</b>

**DSM-5 Classification (May 2013):**

Is an evidence-based manual useful in accurately and consistently diagnose mental disorders. In preparation for the release of DSM-5, experts from psychiatry, psychology, social work, neuroscience, pediatrics and other fields have committed years to reviewing scientific research and clinical data, analyzing the findings of extensive field trials and reviewing thousands of comments from the public. DSM-5 represents the contributions of more than 700 distinguished mental health and medical experts during an extensive and rigorous 14-year development process. <http://www.dsm5.org/>

## Etiology in Psychiatry

The complexity of etiology in psychiatry:

1. **Time factor:** causes are often remote in time from the effect they produce.
  2. **Single cause:** may lead to several psychological effects e.g. deprivation from parental affection may lead to depression or conduct disorder in children and adolescents.
  3. **Single effect:** may arise from several causes e.g. depression may be due to accumulation of several causes like endocrinopathies, psychosocial stresses and side effects of some drugs.
- Most psychiatric disorders are multifactorial.**

Etiological Factors can be classified into biological, psychological, and social factors; Bio-Psycho-Social approach:

Effect Nature		Effect			
		Predisposing	Precipitating	Aggravating	Maintaining
N A T U R E	<b>Bio</b>	E.g. Genetic predisposition e.g. panic disorder	E.g. First dose of cannabis abuse	E.g. Further abuse	E.g. Continuation of cannabis abuse
	<b>Psycho</b>	E.g. Abnormal personally traits with poor stress adaptation	E.g. Sudden or severe psychological stress	E.g. Further psychological stresses	E.g. Continuation of such stresses
	<b>Social</b>	E.g. Parental separation	E.g. Marriage	E.g. Marital conflict	E.g. continuation of marital problems

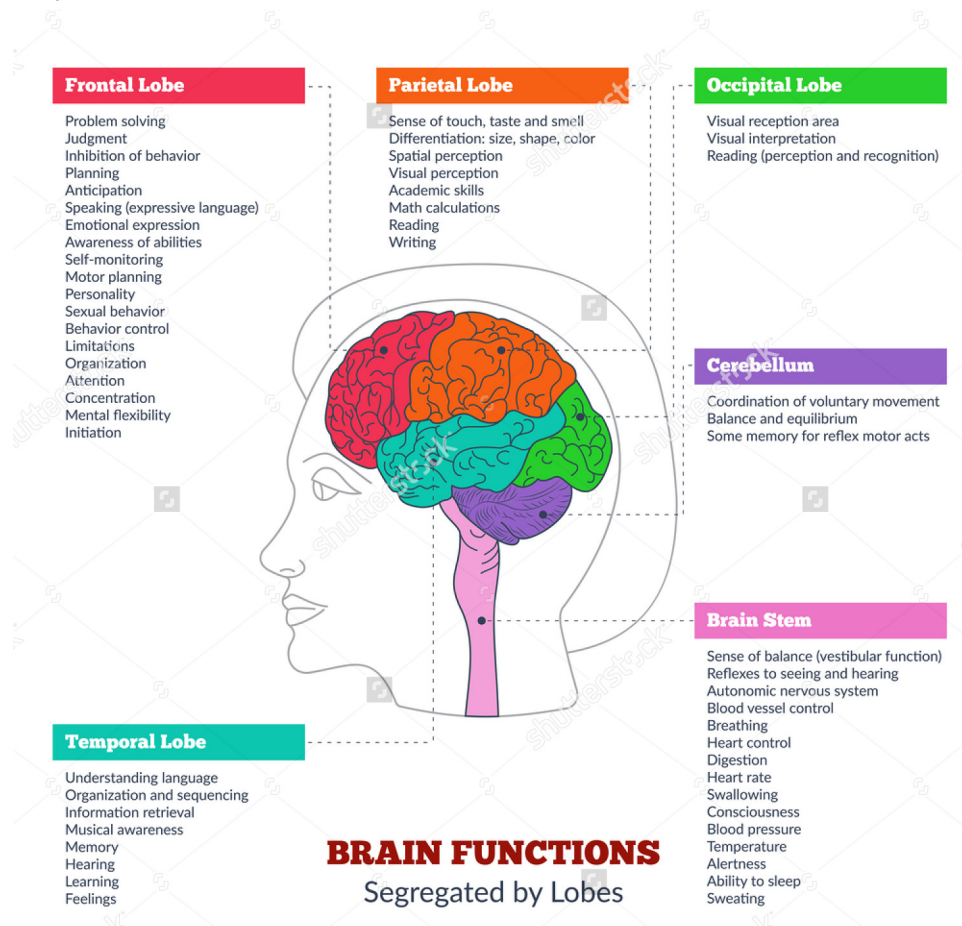
Main causative factors in psychiatry:

- A. Genetic: e.g. in schizophrenia, **mood disorders**, panic disorder and agoraphobia.
- B. Neuropathological: e.g. dementias, delirium.
- C. Endocrinopathological: e.g. hyperthyroidism, hypothyroidism.
- D. Pharmacological: side effects of medications e.g. steroids lead to mood changes.
- E. Social: e.g. marital discord, occupational problems, financial difficulties.
- F. Psychological: behavioral, cognitive, or psychodynamic problems (subconscious processes that involve distortion of reality in order to deal with, and resolve the intra-psychic conflict (defense mechanism).

Supernatural causal attributions; although many cultures view black magic (sorcery), evil eye, and devil possession hidden causes of mental diseases it is impossible to subjects such supernatural matters to empirical research.

## Review of neuroanatomy and neurophysiology

Structure	Function
Frontal Lobe	<ul style="list-style-type: none"> <li>Cognitive and intellectual functions: attention, concentration, registration, orientation (to time, place, and person) reasoning, understanding, analysis, comparison, critical thinking, problem- solving, planning and judgment.</li> <li>Control of emotion, voluntary movements, and sphincters.</li> <li>Speech (motor language).</li> </ul>
Temporal Lobe	<ul style="list-style-type: none"> <li>Retention, comprehension, and recall of information.</li> <li>Emotional and sexual activity.</li> </ul>
Parietal Lobe	<ul style="list-style-type: none"> <li>Interpretation of sensations: touch and pressure.</li> <li>Appreciation of body parts (spatial orientation).</li> <li>Constructional skills: dressing and drawing.</li> </ul>
Occipital Lobe	Analysis of visual sensations (color, shape, and dimensions).
Cerebellum	<ul style="list-style-type: none"> <li>Coordination of muscle contractions and motor activity.</li> <li>Maintenance of posture and body balance.</li> </ul>
Basal Ganglia	Subconscious control of tone and movements of the skeletal muscles, such as swinging the arms while walking.
Midbrain	<ul style="list-style-type: none"> <li>Control of reflexive head and eye movements.</li> <li>Raphe nuclei functions (see serotonin p6).</li> <li>Consciousness and arousal (function of the reticular formation which extends also through pons and medulla).</li> </ul>
Pons	<ul style="list-style-type: none"> <li>Connection of various parts of the brain with each other.</li> <li>Cranial nerve functions (5, 6, 7 and 8).</li> <li>Locus Cerulus is the most important noradrenergic nucleus in the brain, which has very high density of noradrenaline neurons, and numerous projections to other brain regions; especially the cortex and hippocampus. It is essential for the behavioral and physiological expression of anxiety and fear.</li> </ul>
Medulla	<ul style="list-style-type: none"> <li>Medulla contains vital centers (cardiac, respiratory and vasomotor) and non-vital centers (vomiting, swallowing, sneezing, coughing, and hiccupping).</li> <li>Cranial nerves functions (9,10, and 11).</li> </ul>
Reticular Formation System	<ul style="list-style-type: none"> <li><b>Consciousness and alertness.</b></li> <li>Control of skeletal muscles.</li> <li>Control of somatic and visceral sensations.</li> </ul>
Thalamus	<ul style="list-style-type: none"> <li>Sensory relay station: processing tactile, proprioceptive, pain and temperature information, sending it to sensory cortical areas.</li> <li>Integrating a large variety of sensory and motor information, and the relation of this information to one's emotional feelings, subjective states, and personality.</li> <li>Influencing the level of consciousness and alertness through connections with the reticular formation and cortical centers.</li> </ul>
Hypothalamus	<p>Hypothalamus preserves <b>body homeostasis</b> through regulation of:</p> <ul style="list-style-type: none"> <li><b>Food intake:</b> feeding/hunger center, located in the lateral side of hypothalamus, which is chronically active and its activity is transiently inhibited by the activity in the satiety center, located in the ventro-medial side, after the ingestion of food.</li> <li><b>Water intake:</b> (superiolateral part of Hypothalamus).</li> <li><b>Sleep:</b> (suprachiasmatic nucleus: light reduces melatonin in pineal gland whereas darkness enhances melatonin secretion).</li> <li><b>Temperature:</b> Antirising center in the anterior hypothalamus, mediates the parasympathetic system to increase body heat loss, thus reducing body temperature. Antidrop center in the posterior hypothalamus mediates the sympathetic system to reduce body heat loss.</li> <li><b>Higher control of hormones:</b> Catecholamines-vasopressin-oxytocin-ACTH-TSH-FSH-LHProlactin and growth hormones.</li> <li><b>Higher control of the autonomic nervous system:</b> <ul style="list-style-type: none"> <li>Parasympathetic (by anterior hypothalamus).</li> <li>Sympathetic (by posterior hypothalamus).</li> </ul> </li> </ul>



### The Autonomic Nervous System

#### The sympathetic nervous system

- $\beta_1$  stimulation: acceleration in the heart rate and increase in the myocardial contractility.
- $\beta_2$  stimulation: vasodilatation of skeletal muscles and coronary arteries, bronchodilatation, and relaxation of uterus, intestines and bladder.
- $\alpha$  receptor stimulation: constriction of the arterioles of the skin and intestine, mydriasis, piloerection, sweating, ejaculation, closure of the sphincters and reduction of salivary glands secretion.

#### The parasympathetic nervous system

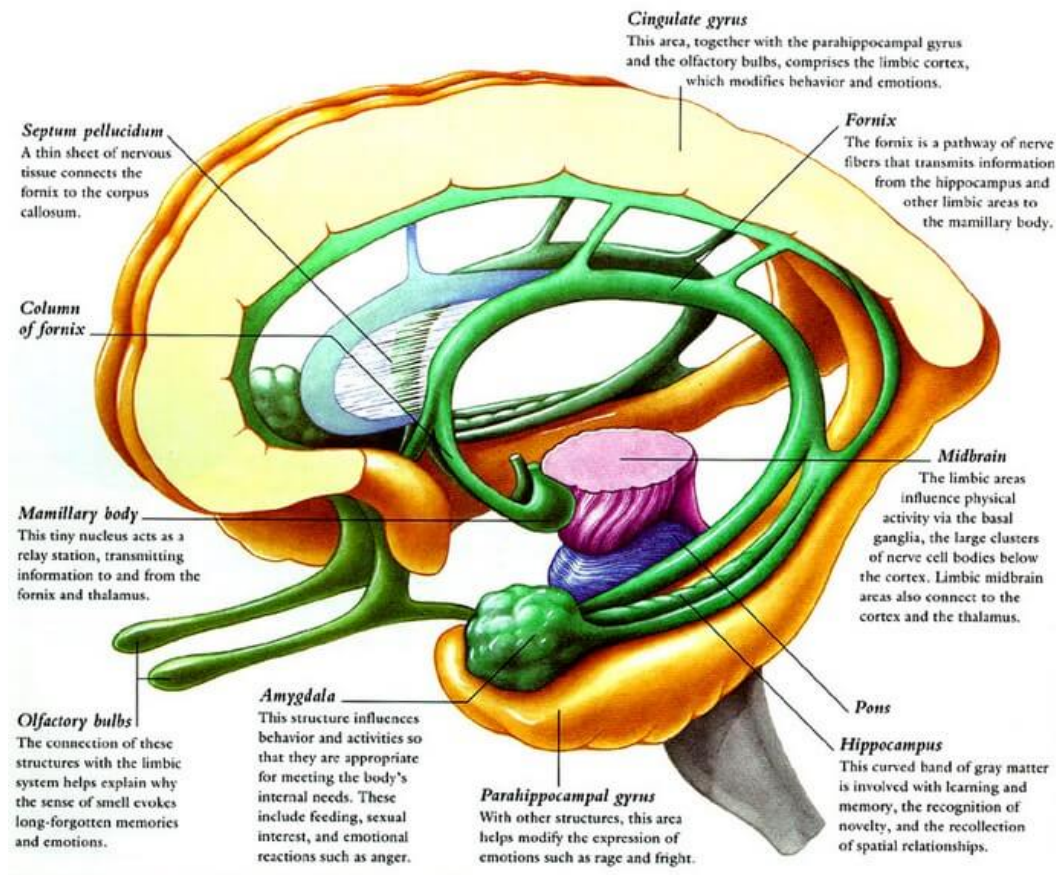
It aims at restoring energy. It slows the heart rate, constricts the pupils, increases peristalsis of the intestine and glandular activities (increasing secretions), opens the sphincters and contracts the bladder wall. The parasympathetic neurons also **facilitate erection**.

### The Limbic System

**Components:** Cingulate gyrus, hippocampus (temporal lobe), amygdala, parahippocampal gyrus, hypothalamus, anterior nucleus of thalamus, major tracts connecting the system.

#### Functions:

- **Emotional and behavioral responses (anger, fear, etc.).** Emotions may be modified by thinking and judgment (frontal lobe functions). However, limbic circuits have prolonged after-discharge following stimulation. Thus, emotional responses are generally prolonged and outlast the stimuli that initiate them.
- Sexual feelings and pleasure: norepinephrine is involved in ejaculation (males) and orgasm (females).
- Recent memory.



### The Gate Control Theory of Pain:

In the dorsal horn of the spinal cord, competing signals and neurotransmitters can open or close the gate on painful perceptions. Substance P is involved in altering the pain threshold. Serotonin in descending pathways has an inhibitory effect (closing the gate). Endorphin deficiency seems to correlate with the augmentation of afferent stimuli.

## Review of neurotransmitters

### 1. SEROTONIN (5 Hydroxytryptamine = 5HT):

Serotonin is found in the gastrointestinal tract, platelets, monocytes (5HT1A: enhances activity of natural killer cells /psychoneuroimmunity), the brain, and the spinal cord.

The major site of serotonergic cell bodies in the brain is the raphe nuclei in the brainstem, from which fibers project to many brain structures, these include projections to:

- Frontal cortex: regulation of emotional reaction to stress and impulsive behavior ( 5HT 1A).
- Limbic system: anxiety and panic feelings (5HT 2A-2C).
- Basal ganglia: movement control and compulsions (5HT2A).
- Hypothalamus: appetite and eating regulation (5HT 3).
- Brainstem chemoreceptor trigger zone: vomiting (5HT 3).
- Brainstem sleep centers: deep sleep (5HT 2A). Ingestion of food rich in tryptophan rapidly increases brain serotonin synthesis, which accounts for their mild sedative effects.
- Spinal cord: sexual spinal responses, orgasm (5HT 2A).
- Peripheral serotonergic receptors in the intestine regulate intestinal secretions and motility (5HT 3,4 &7).

Serotonin deficiency is found in depression, anxiety, panic disorder, phobias, obsessive compulsive disorder and bulimia nervosa.

Serotonin is synthesized from L-tryptophan and metabolized to an inactive metabolite by MAO-A enzyme.

## 2. DOPAMINE:

Dopamine is a catecholamine synthesized from tyrosine. There are four major dopaminergic tracts:

1. The mesolimbic dopamine pathway: emotional behavior, reward reinforcement, pleasure feelings and sex drive. Nucleus accumbens is a dopaminergic nucleus, located in the mesolimbic pathway, **involved in the physiological reward system**. Its reinforcing effects are stimulated by caffeine, nicotine, cocaine and other CNS stimulants. Its stimulation increases sex desire and behavioral response, and suppresses appetite. **Pathological hyperactivity of the mesolimbic pathway accounts for active psychotic features (hallucinations, delusions, aggression...)**.
2. The mesocortical dopamine pathway: mental arousal and cognitive functions. Pathological underactivity of this pathway (mesocortical defect: due to primary dopamine neuron defect, glutamate excitotoxic overactivity, or serotonergic overactivity) is responsible for most negative features and cognitive defects seen in some schizophrenic patients.
3. The nigrostriatal tract: low dopamine levels are associated with motor symptoms of Parkinson's disease. Antidopaminergic drugs lead to Parkinsonian extrapyramidal side effects. Serotonin 2A receptors on dopamine neurons inhibit dopamine release.
4. The tuberoinfundibular tract: dopamine inhibits prolactin release from the anterior pituitary

Dopamine Receptors:

- D1 receptors may play a role in negative symptoms (D1 antagonist treat negative symptoms).
- D2 receptors blocked by anti-psychotic drugs for the treatment of positive psychotic symptoms. D2 agonists are used for the treatment of Parkinson's disease.
- Other dopaminergic receptors (D3, D4 & D5): it is not clear to what extent these receptors contribute to the clinical properties of anti-psychotic drugs.

## 3. NORADRENALINE (NOREPINEPHRINE):

Noradrenaline is a catecholamine synthesized through hydroxylation of dopamine. The major concentration of noradrenergic cell bodies in the brain is in the locus ceruleus from which neurons project to:

- Frontal cortex: regulation of mood (Beta 1 receptors) and regulation of cognitive functions (Alpha-2 receptors)
- Limbic system: energy, emotions and psychomotor activity control.
- Cerebellum: regulation of motor movements.
- Cardiovascular centers in the brainstem: blood pressure regulation.

Noradrenergic innervation regulates the heart rate (via Beta 1 receptors in sympathetic neurons) and controls bladder emptying (via Alpha receptors). Alpha-2 presynaptic noradrenergic autoreceptors (on adrenergic neurons) and heteroreceptors (on serotonergic neurons) have a negative feedback effect; inhibiting excessive release of noradrenaline and serotonin respectively.

Noradrenaline at low concentrations has stimulatory effects on immune function but it inhibits effects at high concentrations.

Noradrenaline is involved in ejaculation in men and orgasm in women.

### Noradrenaline – Serotonin Interactions:

There are two types of presynaptic noradrenergic receptors on serotonin neurons that regulate serotonin release:

- $\alpha$ -1 receptors (in the brainstem; a pathway from locus ceruleus to raphe nuclei), when stimulated, these receptors enhance serotonin release.
- $\alpha$ -2 heteroreceptors (in the cortex): when stimulated, they turn off serotonin release.

## 4. ACETYLCHOLINE (ACH):

Acetylcholine is synthesized from choline and acetyl coenzyme A. The major brain center for cholinergic neurons is the nucleus basalis of Meynert, which projects to cerebral cortex and the limbic system. These neurons have the **principal role in mediating short-term memory**.

Additional cholinergic neurons are found in:

- The reticular formation: REM –sleep induction.
- Basal ganglia (extrapyramidal tract) and cerebellum: regulation of body posture, muscle tone and motor movements.
- The autonomic nervous system: parasympathetic (both pre and post synaptic pathways) some sympathetic pathways (presynaptic/sweat glands).

Acetylcholine is involved in erection. N.B.: nitric oxide (NO), not nitrous oxide (N<sub>2</sub>O), is also involved in erection. It is synthesized in the body from L-arginine.

**5. GAMA AMINOBUTYRIC ACID (GABA):**

GABA is an amino acid neurotransmitter with a very fast inhibitory action. It is found almost exclusively in the brain, and synthesized from glutamate. GABA suppresses seizure activity, anxiety and mania. There are three types of GABA receptors A, B&C. The GABA-A receptors have binding sites for benzodiazepines and barbiturates, which increase the affinity of the GABA-A receptors for GABA.

**6. GLUTAMATE:**

Glutamate is an amino acid excitatory neurotransmitter synthesized from deamination of glutamine. Many sensory organs – including the cochlea, the olfactory bulb, the retina, and thalamocortical fibers– use glutamate as their principal neurotransmitter. Pyramidal neurons in the cortex are glutamatergic. Glutamate is involved in the highly organized information flow through the brain. In the hippocampus, glutamate may be specifically relevant to the pathophysiology of dementing illness (Alzheimer's disease). Glutamate excitotoxicity is suggested as a possible cause of neuronal degeneration in schizophrenic patients with negative features. Sigma receptors (1&2): related to glutamate receptors (NMDA) and involved in enhancement of memory and cognitive functions, when stimulated by fluvoxamine they improved the negative symptoms in schizophrenic patients.

**7. SUBSTANCE – P:**

It is an excitatory neurotransmitter associated with mediation of pain perception and thought to play an important role in the pathogenesis of migraine, cluster headache and chronic pain. Abnormalities affecting substance P have also been hypothesized for mood disorders, Alzheimer's dementia and Huntington's disease.

**8. HISTAMINE:**

Histamine is located in the hypothalamus and fibers projecting to cerebral cortex, the limbic system, and the thalamus.

There are three types of histamine receptors:

H1 receptors regulate appetite and arousal, and have a role in allergic symptoms. When antihistamines are used for allergic symptoms they exert marked sedative effects and weight gain.

H2 receptors are involved in gastric acid output; when H2 – receptors antagonist are used they heal gastric and duodenal ulcers.

**9. MELATONIN:**

Hypnotic hormone produced by the pineal gland stimulated by darkness and inhibited by light (suprachiasmatic nucleus), involved in regulation of sleep-wake 24-hour cycle.

**10. ENDOGENOUS OPIOIDS:**

Enkephalins, endorphins and dynorphins are involved through their receptors (mu, kappa and delta) in many mental functions: pain perception (analgesics), learning, memory, mood and dependence.

	HIGH	LOW
<b>Cortisol</b>	Fatigue Inflammation and Allergies Anxiety Poor Sleep Insulin Resistance Immune Suppression	Fatigue Inflammation and Allergies
<b>Dopamine</b>	Developmental Problems Schizophrenia Psychosis Possible increased testosterone production	Lack of Motivation Focus Memory Addictions and Cravings Low Libido/ decreased testosterone Poor motor control/ Tremors
<b>Noradrenaline</b>	Stress and Anxiety Hyperactivity Increased Blood Pressure Pain	Lack of Focus/Energy/Motivation Depression with Apathy
<b>Adrenaline</b>	Insomnia Anxiety Stress Blood Sugar Imbalance Insulin Resistance Allergic reactions	Poor Methylation Lack of Focus Lack of Energy Poor Blood Sugar Control
<b>Glutamate</b>	Neurotoxicity Anxiety Stress Decreased Mood Sleep disturbances	Fatigue Low Brain Function Poor Memory
<b>Serotonin</b>	Headache, mental confusion Sweating, shivering Hypertension, tachycardia Nausea, vomiting Muscle twitching, tremor	Depression/Low Mood Hot Flashes Sleep Difficulties/Anxiety Carbohydrate Cravings Constipation
<b>GABA</b>	Anxiety Tingling of extremities Shortness of breath Numb feeling around the Mouth Throbbing heart	Anxiety Hyperactivity PMS Sleep issues Mood disorders/Anxiety Depression



# Clinical psychology

## 1. LEARNING THEORIES

Learning is a relatively permanent change in behavior brought about by prior experience. There are three basic learning theories: I. Classical Conditioning. II. Operant Conditioning. III. Modeling

### I. Classical Conditioning

Stage 1: Unconditioned stimulus (e.g. food) > Unconditioned response (e.g. salivation)

Stage 2: Conditioned stimulus (e.g. sound of the bell) + Unconditioned stimulus (food) > Unconditioned response (salivation).

Stage 3: Conditioned stimulus (sound of the bell) > Conditioned response (salivation).

### II. Operant Conditioning Behavior

Which is followed by advantageous consequences, is likely to be repeated, whereas behavior followed by noxious consequences will become less frequent.

Reinforcement: the process of increasing the frequency of a particular piece of behavior by presenting a reinforcing stimulus.

Positive reinforcement: enhancement of behavior by a desired reward.

Negative reinforcement: enhancement of behavior by removal of undesirable event.

### III. Modeling

Occurs when the behavior of an individual (the observer) is affected by the opportunity to observe the behavior of another person (the model).

#### Clinical Uses of Learning Theories:

- Treatment of phobias (systemic desensitization and flooding).
- Treatment of obsessive rituals (exposure and response prevention).
- Relaxation training (for anxiety).
- Aversion therapy (for alcoholism and sexual deviation).

## 2. COGNITIVE THEORY:

It emphasizes the impact of interpretation of events, expectations, and process of thinking about oneself, people, the environment, the past, and the future on the mood and behavior. Depression and anxiety result from, and complicated by, wrong automatic thoughts e.g. "I am bad person". Correction of erroneous thoughts with cognitive therapy usually relieves patients from negative emotions.

## 3. PSYCHOANALYTIC THEORY:

### A -Topographic model of the mind:

It divides the mind into three regions, and each of which has its own characteristics:

- 1. The conscious:** The part of the mind in which perceptions coming from the mind, the body and from the outside world are brought into awareness. Its content can be communicated by means of language or behavior.
- 2. The unconscious:** The part of the mind that contains the instinctual wishes and drives (self preservative drives and sexual instincts) and represses them; keeping them out of conscious awareness through resistance to remembering.
- 3. The preconscious:** The part of the mind that comprises those mental processes, contents and events that are capable of being brought into conscious awareness by deliberate focusing of attention on the memory.

**B - Structural Theory Model (Ego Psychology):** It divides the psychological apparatus into the id, the ego and the super ego.

- 1. The "id":** It includes the unconscious instinctual wishes and drives, and operates according to the pleasure principle (it lacks the capacity to delay or modify the instinctual drives).
- 2. The "ego":** It attempts to achieve and coordinate optimal gratification of instinctual wishes and drives while maintaining good relations with the demands of the outer world and external reality.
- 3. The "superego":** It includes internalized moral values, prohibitions and standards; and offers approval or disapproval. The superego conducts an ongoing scrutiny of the person's feelings, thoughts, and behavior. It establishes and maintains the person's moral conscience.

**Defense Mechanism:** subconscious mental processes used by a person to deal with distressing situations or internal conflicts.

- 1. Acting out:** impulsive behavior in expression of a suppressed desire or conflict to avoid being conscious of the emotions that accompany it. It occurs mainly in children (e.g., tantrums), adolescents (e.g., motiveless assaults), and patients with borderline personality disorder (e.g., destructive behavior, deliberate self-harm).
- 2. Compensation:** covering up for a weakness in the personality by over-emphasizing another desirable trait. E.g., a person with social anxiety becomes known for his expressive writings.
- 3. Conversion:** symbolic expression of intrapsychic conflict through physical symptoms. E.g., a student in the exam suddenly develops pseudo-seizure. By so doing, two kinds of gains he achieves: 1. Primary gain: relief of intrapsychic distress. 2. Secondary gain: to be excused from the exam. It occurs mainly in conversion disorder.
- 4. Denial:** rejection or disapproval of distressing reality (e.g., faults, poor performance, physical illness, loss of a loved person).
- 5. Displacement:** transfer and discharge of bent-up intense emotions (e.g. anger, fear) on objects less dangerous than those arousing them. E.g., a man harassed by his boss at work, comes home and yells at his wife.
- 6. Identification:** matching and modeling another person's behavior or attitude. E.g., a patient develops psychosomatic chest pain after death of a relative of heart attack.
- 7. Intellectualization:** overemphasizing logical analysis of a situation through philosophical discussions to avoid distressing emotions accompanying it. E.g., a patient told to have cancer appeared self-composed and talked a lot about how cancer is challenging to doctors.
- 8. Projection:** exempting self from one's own faults, bad motives, or wrong doings by attributing them to someone else. E.g., someone who dislikes a colleague may attribute to him feelings of anger, and in turn dislike. In this way, his own feelings of dislike may appear justified and become less distressing.
- 9. Rationalization:** justifying a behavior or attitude with logical, plausible reasons, but these are not the real reasons. E.g., a student states, "I was able to get grade "A+", but I was afraid of evil eye, that is why I left some questions unanswered."
- 10. Reaction formation:** controlling a distressing feelings by adopting the opposite behavior or attitude to that which would reflect the true feelings. E.g. a medical student who has been dismissed from medical college because of poor achievement and wished he continued studying medicine tells his family he hates medicine.
- 11. Regression:** a return to earlier and more comfortable patterns of thinking and behavior involving less mature reaction and responsibility. E.g., an adolescent boy whose self-esteem has been shattered reverts to child-like "show-off" behavior.
- 12. Splitting:** dividing his evaluation of others and situations into two extremes either all good or all bad rather than considering the full range of their qualities. E.g. **a patient with borderline personality disorder over-idealizes some doctors and devalues others.**
- 13. Sublimation:** diverting unacceptable drives (particularly sexual and aggressive) into socially acceptable channels such as creative activities. E.g. turning chronic anger feelings into vigorous sporting activities.
- 14. Undoing:** doing something to counteract unacceptable desires. E.g. a teenager who feels guilty about masturbation ritually cleans his hands excessively following each occurrence of the act.

**4. INTELLIGENCE TESTING:**

Intelligence is the ability to solve environmental problems and to adapt to changes. Two common tests are:

- Stanford - Binet test (age 2 to 18 years).
- Wechsler scales (for children and adults).

Intelligence tests assess intellectual ability; verbal/vocabulary, visual-spatial (picture assembly), math skills, and performance skills.

Intelligence Quotient (IQ) = (mental age/chronological age) x 100

IQ scores: average normal (100 +10), bright normal (120), superior (> 130), dull normal (80-90), borderline (70-79), mild mental retardation (50-70), moderate mental retardation (35-49), severe mental retardation (20-34), and profound mental retardation (< 20).

<b>IQ Test Scale</b>	
<b>70</b>	Borderline (less than 1 person out of 100,000)
<b>85</b>	Low normal
<b>100</b>	Upper normal
<b>115</b>	Bright
<b>130</b>	Gifted
<b>145</b>	Highly gifted (approximately 1 in 1,000)
<b>160+</b>	Exceptionally gifted (approximately 1 in 100,000)

**5. PERSONALITY TESTING:**

Personality is the distinctive patterns of thought, emotion, and behavior that define an individual's personal style and influence his or her interactions with the environment.

Personality measures

A- There are many personality tests that measure the various traits of normal personality, the most widely used are the following:

- The five factor model of personality (FFM).
- The Myers-Briggs Type Indicator (MBTI).
- The 16 Personality Factor Questionnaire (16 PF).
- The California Psychological Inventory (CPI).

They are helpful in predicting behavior, achievement, and adaptation to stress. They can be used in many settings like academic, career, and occupational selection.

B- In clinical psychology practice, there are tests used to detect abnormal patterns of personality.

**Objective Tests** (questions with standardized-response format that can be objectively scored).

- Eysenck Personality Inventory (EPI).
- Minnesota Multiphasic Personality Inventory (MMPI-2).

**Projective Tests** (interpretation of ambiguous stimuli with no objective structured- answer format).

- Rorschach test: to identify disordered thoughts and defense mechanisms through interpretation of inkblots.
- Thematic Apperception Test (TAT): to evaluate motivations and attitude behind behaviors through creating stories based on pictures of people in various situations.

Several intelligence and personality tests are available in Arabic language, and validated in some Arab communities.

Clinical psychologists play important roles within the psychiatric team for both patients' assessment (e.g., IQ, personality) and treatment (e.g., cognitive-behavior therapy).

**We hope you found  
this file useful**

