

Schizophrenia

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- Schizophrenia is one of the most complex and challenging of psychiatric disorders.
- Schizophrenia is characterized by delusions, hallucinations, disorganized, bizarre thoughts and speech, abnormal motor behavior, and negative symptoms.

DSM-IV-TR, Diagnostic and Statistical Manual of Mental Disorders, 4th ed., text revision. *Adapted from American Psychiatric Association.*

- The DSM–IV–TR classifies the symptoms of schizophrenia into two categories: positive and negative.
- Recently greater emphasis has been placed on a third symptom category, cognitive dysfunction

DSM-IV-TR Diagnostic Criteria for Schizophrenia

A. Characteristic symptoms: Two or more of the following, each persisting for a significant portion of at least a 1-month period:

- (1) Delusions
- (2) Hallucinations
- (3) Disorganized speech
- (4) Grossly disorganized or catatonic behavior
- (5) Negative symptoms

Note: Only one criterion A symptom is required if delusions are bizarre or if hallucinations consist of a voice keeping a running commentary on the person's behavior or two or more voices conversing with each other.

B. Social/occupational dysfunction: For a significant portion of the time since onset of the disorder, one or more major areas of functioning such as work, interpersonal relations, or self-care are significantly below the level prior to onset.

C. Duration: Continuous signs of the disorder for at least 6 months. This must include at least 1 month of symptoms fulfilling criterion A (unless successfully treated). This 6 months may include prodromal or residual symptoms.

D. Schizoaffective or mood disorder has been excluded.

E. Disorder is not due to a medical disorder or substance use.

F. If a history of a pervasive developmental disorder is present, there must be symptoms of hallucinations or delusions present for at least 1 month.

Schizophrenia Symptom Clusters

Positive

Suspiciousness

Unusual thought content
(delusions)

Hallucinations

Conceptual disorganization

Negative

Affective flattening

Alogia

Anhedonia

Avolition

Cognitive

Impaired attention

Impaired working memory

Impaired executive function

Impact of Schizophrenia Symptoms on Functional Outcomes

Positive Symptoms

Negative Symptoms

Social/Occupational Dysfunction

- work
- interpersonal relationships
- self-care

Cognitive Symptoms

Etiopathogenesis

- Increased ventricular size and decreased gray matter, have been reported.
- Schizophrenia causation theories include
 1. Genetic predisposition–
 - Polymorphism in the VAL/MET alleles of the catecholamine-O-methyl transferase gene
 - Alleles with decreased dysbindin(**dysbindin** is a neurodevelopmental protein gene that is found on chromosome 6) RNA in the dorsolateral prefrontal cortex

Etiopathogenesis

- Schizophrenia causation theories include
 2. Obstetric complications–
 - In-utero disturbance, upper respiratory infections in second trimester
 - Obstetric complications or neonatal hypoxia
 - Low birth-weight
 3. Increased neuronal pruning
 - Decreased number of basal neurons and Glutamatergic activation can exaggerate neuronal pruning

4. Immune system abnormalities

5. Neurodevelopmental disorders,

- A deficiency of glial growth factors—such as NRG (Neuroglin)— predisposes to synaptic destabilization
- Abnormalities in synaptic plasticity due to overexpression of Neuregulin-1

6. Neurodegenerative theories,

7. Dopamine receptor defect,

- Regional brain abnormalities including hyper- or hypo-activity of dopaminergic processes in specific brain regions.
- Positive symptoms may be more closely associated with dopamine receptor hyperactivity in the mesocaudate.
- Negative and cognitive symptoms may be most closely related to dopamine receptor hypofunction in the prefrontal cortex.

8. Glutamatergic dysfunction.

- A deficiency of glutamatergic activity produces symptoms similar to those of dopaminergic hyperactivity and possibly schizophrenic symptoms.

9. Serotonin (5-hydroxytryptamine [5-HT]) abnormalities.

- Schizophrenic patients with abnormal brain scans have higher whole blood 5-HT concentrations, which correlate with increased ventricular size.