

# 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**.