

**Author(s):** Michael Jibson, M.D., Ph.D., 2009

License: Unless otherwise noted, this material is made available under the terms of the

**Creative Commons Attribution–Share Alike 3.0 License:**

<http://creativecommons.org/licenses/by-sa/3.0/>

**We have reviewed this material** in accordance with U.S. Copyright Law **and have tried to maximize your ability to use, share, and adapt it.** The citation key on the following slide provides information about how you may share and adapt this material.

Copyright holders of content included in this material should contact [open.michigan@umich.edu](mailto:open.michigan@umich.edu) with any questions, corrections, or clarification regarding the use of content.

For more information about **how to cite** these materials visit <http://open.umich.edu/education/about/terms-of-use>.

Any **medical information** in this material is intended to inform and educate and **is not a tool for self-diagnosis** or a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional. Please speak to your physician if you have questions about your medical condition.

**Viewer discretion is advised:** Some medical content is graphic and may not be suitable for all viewers.

## Schizophrenia and Other Psychotic Disorders


- I. Psychosis: Significant impairment in reality testing, as evidenced by hallucinations, delusions, thought disorganization, or grossly disorganized behavior
  - A. Hallucination - False sensory perception.
    1. Auditory
    2. Visual
    3. Tactile
    4. Olfactory
    5. Gustatory
  - B. Delusion - False belief that is based on incorrect inference about external reality, firmly held despite obvious evidence to the contrary, and not sanctioned by the individual's culture or group
    1. Persecutory - belief that one is being malevolently treated in some way
    2. Referential - neutral occurrences are seen as directed toward oneself
    3. Religious - delusional beliefs of a spiritual or religious nature
    4. Control - thoughts, feelings, or body feel controlled or manipulated
    5. Grandiose - inflated sense of worth, power, accomplishment, etc.
    6. Somatic - belief that one's body is defective, has been changed, or is diseased
    7. Jealous - belief that one's sexual partner is unfaithful
    8. Erotomanic - belief that another (often famous) person is in love with one
  - C. Disorganized Thoughts or Behavior – Meaningless or chaotic speech, loose associations, bizarre behavior, poorly directed behavior, catatonia
- II. Schizophrenia
  - A. Historical Background
    1. Kraepelin - Dementia Praecox (*Dementia Praecox and Paraphrenia*, 1896)
    2. Bleuler's "Four A's" (*Dementia Praecox; or, the Group of Schizophrenias*, 1911)
      - a. Autism
      - b. Loose associations
      - c. Affective disturbance
      - d. Ambivalence
    3. Schneider's "First-Rank Symptoms" (1950's)
      - a. Audible thoughts
      - b. More than one voice arguing or discussing the patient
      - c. Voices commenting on the patient's activities
      - d. Thought insertion
      - e. Thought withdrawal
      - f. Thought broadcasting
      - g. Made feelings/Made impulses
      - h. Made volition
      - i. Somatic passivity
      - j. Delusional perception

- 4. DSM-III (1980)
  - a. Active psychosis
  - b. Functional deterioration

B. DSM-IV Diagnostic Criteria

- A. At least two psychotic symptoms for one month**
- B. Social or occupational dysfunction**
- C. Six month duration of symptoms**
- D. Schizoaffective and major mood disorders have been excluded
- E. Substance abuse and medical conditions have been excluded
- F. Not due to a pervasive developmental disorder (e.g. autism)

<b>Diagnostic Criteria for Schizophrenia (DSM-IV)</b>	
<p>A. <b>Characteristic symptoms:</b> Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):</p> <ul style="list-style-type: none"> <li>(1) delusions</li> <li>(2) hallucinations</li> <li>(3) disorganized speech (e.g., frequent derailment or incoherence)</li> <li>(4) grossly disorganized or catatonic behavior</li> <li>(5) negative symptoms, i.e., affective flattening, alogia, or avolition</li> </ul> <p>B. <b>Social/occupational dysfunction:</b> For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).</p> <p>C. <b>Duration:</b> Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of</p>	<p>prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).</p> <p>D. <b>Schizoaffective and Mood Disorder exclusion:</b> Schizoaffective Disorder and Mood Disorder With Psychotic Features have been ruled out because either (1) no Major Depressive, Manic, or Mixed Episodes have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.</p> <p>E. <b>Substance/general medical condition exclusion:</b> The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.</p> <p>F. <b>Relationship to a Pervasive Developmental Disorder:</b> If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).</p>

 Source Undetermined

C. Subtype Definition and Hierarchy

- 1. Paranoid type
  - a. Preoccupation with one or more delusions or frequent auditory hallucinations
  - b. No prominent disorganized speech, disorganized or catatonic behavior, or flat or inappropriate affect
- 2. Disorganized type
  - a. Prominent disorganized speech, disorganized behavior, *and* flat or inappropriate affect
- 3. Catatonic type

- a. Motoric immobility, catalepsy (waxy flexibility) or stupor
  - b. Excessive, purposeless motor activity
  - c. Extreme negativism (motiveless resistance to instructions) or mutism
  - d. Peculiarities of voluntary movement or posture, stereotyped movements, prominent mannerisms, or prominent grimacing
  - e. Echolalia (echoing words) or echopraxia (mimicking gestures)
4. Undifferentiated type – no one type of symptom predominates
  5. Residual type
    - a. Absence of prominent delusions, hallucinations, disorganized speech, and grossly disorganized or catatonic behavior
    - b. Continuing evidence of disturbance (negative symptoms, attenuated psychotic symptoms, odd beliefs, unusual perceptual experiences)

#### D. Symptom Descriptions


1. Positive symptoms
  - a. Delusions
  - b. Hallucinations
  - c. Thought disorganization
2. Negative symptoms
  - a. Blunted affect - decreased facial expression, vocal inflection, eye contact, and expressive gestures
  - b. Alogia - reduced amount of speech, reduced content of ideas, thought blocking, long latency
  - c. Avolition/Apathy - poor grooming and hygiene, impersistence at school or work, low energy
  - d. Anhedonia/Asociality - loss of recreational interests, decreased sexual activity, absence of intimacy and personal relationships
  - e. Inattention - socially uninvolved, “spacey,” poor cognitive function
3. Cognitive impairment
  - a. Memory
  - b. Executive function
  - c. Language
  - d. Attention

E. Onset, Course, and Complications

1. Age and circumstances of onset

- a. Prodromal symptoms may be present from birth or may precede psychosis by months or years.
  - i. Poor social adjustment; few friends
  - ii. Poor school and work performance; low IQ
  - iii. Negative symptoms
  - iv. Peculiarities of thought or behavior
- b. Peak age of onset for men is 17-30, and for women is 20-40.
- c. Good and bad prognostic features:

<b>Prognostic Features in Schizophrenia</b>	
<b><u>Good Prognosis</u></b>	<b><u>Poor Prognosis</u></b>
Later onset	Early onset
Obvious precipitating factors	No precipitating factors
Acute onset	Insidious onset
Good premorbid social and work history	Poor premorbid social and work history
Preponderant positive symptoms	Preponderant negative symptoms
Depressive symptoms	Absence of depressive symptoms
Preservation of adequate affective expression	Blunted or inappropriate affect
Paranoid or catatonic features	Undifferentiated or disorganized features
Variable course	Chronic course
Absence of neuropsychological impairment	Presence of neuropsychological impairment
Absence of structural brain abnormalities	Presence of structural brain abnormalities
Good social support systems	Poor social support systems
Early adequate treatment	No treatment or delayed/inadequate treatment

 Source Undetermined

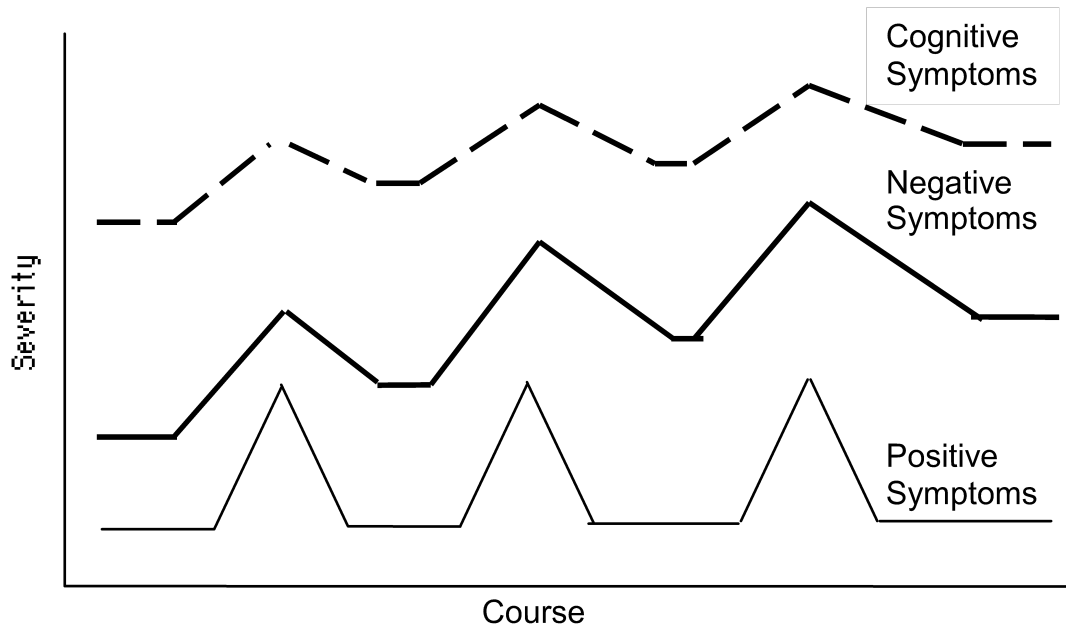
2. Prognosis

- a. 10% of patients recover completely
- b. 75% of untreated patients relapse within 1 year
- c. 20% of patients treated with antipsychotics relapse within 1 year
- d. 30% of patients do not respond to standard antipsychotics
- e. 10-15% of patients respond only to clozapine

3. Clinical Course

- a. Prodromal symptoms typically predate the diagnosis by months or years.
- b. Positive symptoms tend to occur episodically - acute episodes are the most common cause of hospitalization, and respond well to antipsychotic medication.
- c. Negative symptoms tend to be chronic and progressive, are correlated with social and occupational deterioration, and respond poorly to treatment.

- d. Residual symptoms tend to remain even when other symptoms are well controlled.



PD-INEL Source Undetermined

4. Complications

1. Suicide – 5-10% of deaths
2. Depression - occurs in 50% of cases, often after an acute episode
3. Homelessness – 30-35% of homeless
4. Crime: 4-fold increase in acts of violence compared with the general population. These patients are more frequently victims of both violent and nonviolent crimes.
5. Substance abuse

F. Epidemiology

1. Prevalence and social distribution

- a. The lifetime risk of schizophrenia is 1% in all populations
- b. Annual incidence is 15-20 per 100,000
- c. Over-representation of lower socioeconomic groups is probably the result of downward drift

2. Genetic factors

- a. 10% risk to first-degree relatives
- b. 50% risk to monozygotic twins
- c. No specific genetic linkage has been demonstrated

- d. Multiple genes are probably involved

3. Prenatal and perinatal complications
  - a. In utero and perinatal infection
    - i. 2nd trimester viral infections
    - ii. Winter births
  - b. Toxic exposure
  - c. Perinatal anoxia
4. Multi-hit Hypothesis – A combination of genetic vulnerability and environmental insults is required to develop the disorder

G. Pathophysiology - The cause of schizophrenia is unclear, but the following are considered to have a role

1. Dopamine hypothesis Image of dopaminergic tracts removed
  - a. Major dopamine pathways

1. Nigrostriatal tract  
(Extrapyramidal pathway) begins in the substantia nigra and ends in the caudate nucleus and putamen of the basal ganglia.
2. Mesolimbic tract  
Originates in the midbrain tegmentum and innervates the nucleus accumbens and adjacent limbic structures.
3. Mesocortical tract  
Originates in the midbrain tegmentum and innervates anterior cortical areas.
4. Tuberoinfundibular tract  
Projects from the arcuate and periventricular nuclei of the hypothalamus to the pituitary.

- b. Evidence for involvement
  - i. Increased dopamine receptors at autopsy
  - ii. Dopamine agonists and re-uptake blockers worsen psychosis
  - iii. All effective neuroleptics block post-synaptic dopamine actions
  - iv. Good responders to neuroleptics have progressive decrease in plasma HVA (dopamine metabolite), while poor responders do not
- c. Model for dopamine involvement
  - i. Increased subcortical dopamine activity
  - ii. Decreased prefrontal dopamine activity

2. Structural correlates
  - a. Increased ventricle-to-brain ratio
    - i. Most frequently replicated finding in schizophrenia research
    - ii. Not associated with any specific brain structure or pathway



3. Other hypotheses
  - a. Alterations in glutamate neurotransmission involving the NMDA receptor
  - b. Aberrant GABA neurotransmission in the dorsolateral prefrontal cortex

#### H. Treatment

1. Psychopharmacology - Antipsychotic medications
  - a. Conventional antipsychotics (neuroleptics) - 70% of patients respond
  - b. Atypical antipsychotics (risperidone, olanzapine, quetiapine, ziprasidone, aripiprazole)
    - i. First-line drugs of choice – 70% of patients respond
    - ii. Clozapine is effective in 35-50% of patients who do not respond to other antipsychotics (80-85% of all patients)
2. Psychosocial interventions
  - a. Case Management – essential for other interventions to be effective
    - i. Finances
    - ii. Housing
    - iii. Social support network
  - b. Social skills training
  - c. Vocational rehabilitation
  - d. Family psychoeducation – especially for families with high levels of “expressed emotion”
  - e. Supportive psychotherapy

#### III. Mood Disorders

- A. Manic Episode (see “Mood Disorder” notes from 10/28/08)
  1. Psychosis
    - a. Occurs in ~80% of manic episodes (lifetime risk is about 1%)
    - b. Often mood congruent (e.g., grandiose delusions), but may be indistinguishable from psychotic symptoms of schizophrenia or other disorders
    - c. May include catatonia
    - d. Insight tends to be good between episodes, but very poor during the episodes
  2. Treatment
    - a. Antipsychotics – for acute episodes
    - b. Mood stabilizers – for acute episodes and prophylaxis

B. Major Depressive Episode with Psychotic Features (see “Mood Disorder” notes from 10/28/08)

1. Psychosis

- a. 10% of depressed patients develop psychotic features (lifetime risk is about 1%)
- b. Often congruent with mood (e.g., nihilistic, persecutory, punishment, somatic)

2. Treatment

- a. ECT is effective in 80-90% of patients
- b. Antipsychotic plus an antidepressant work in about 50% of cases (neither works well alone)

IV. Other Psychotic Disorders

A. Schizoaffective Disorder

1. Diagnostic criteria

- a. Course of illness includes periods of psychosis without mood symptoms and periods of psychosis with mood symptoms
- b. The psychotic and mood symptoms are both prominent during the course of illness

<b>Diagnostic Criteria for Schizoaffective Disorder (DSM-IV)</b>	
A.	An uninterrupted period of illness during which, at some time, there is either a Major Depressive Episode, a Manic Episode, or a Mixed Episode concurrent with symptoms that meet Criterion A for Schizophrenia.
B.	During the same period of illness, there have been delusions or hallucinations for at least 2 weeks in the absence of prominent mood symptoms.
C.	Symptoms that meet criteria for a mood episode are present for a substantial portion of the total duration of the active and residual periods of the illness.
D.	The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

 Source Undetermined

2. Less common than schizophrenia


3. Treatment includes antipsychotic plus mood stabilizer or antidepressant

B. Delusional Disorder

1. Diagnostic criteria

- a. Isolated, nonbizarre delusions, without other symptoms or impairments

<b>Diagnostic Criteria for Delusional Disorder (DSM-IV)</b>	
A.	Nonbizarre delusions (i.e., involving situations that occur in real life, such as being followed, poisoned, infected, loved at a distance, or deceived by spouse or lover, or having a disease) of at least 1 month's duration.
B.	Criterion A for Schizophrenia has never been met.
C.	Apart from the impact of the delusion(s) or its ramifications, functioning is not markedly impaired and behavior is not obviously odd or bizarre.
D.	If mood episodes have occurred concurrently with delusions, their total duration has been brief relative to the duration of the delusional periods.
E.	The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

 Source Undetermined

2. Onset is in middle or late life
3. Lifetime risk: 0.05%
4. Course is variable
5. Treatment of choice is antipsychotics, but the symptoms respond less well than in other psychotic disorders

C. Brief Psychotic Disorder

1. Diagnostic criteria
  - a. Psychosis that quickly resolves, with no residual impairment

<b>Diagnostic Criteria for Brief Psychotic Disorder (DSM-IV)</b>	
A.	Presence of one (or more) of the following symptoms: <ol style="list-style-type: none"> <li>(1) delusions</li> <li>(2) hallucinations</li> <li>(3) disorganized speech (e.g., frequent derailment or incoherence)</li> <li>(4) grossly disorganized or catatonic behavior</li> </ol>
B.	Duration of an episode of the disturbance is at least 1 day but less than 1 month, with eventual full return to premorbid level of functioning.
C.	The disturbance is not better accounted for by a Mood Disorder With Psychotic Features, Schizoaffective Disorder, or Schizophrenia and is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

 Source Undetermined

2. Major predisposing factor is a personality disorder, especially paranoid, borderline, histrionic, narcissistic, or schizotypal (see Personality and Personality Disorder notes)
3. Course tends to be characterized by rapid onset and rapid resolution
4. Treatment usually includes antipsychotic medications, but symptoms often remit with only supportive care (e.g., hospital milieu, reduction in stress, resolution of interpersonal crisis)

D. Shared Psychotic Disorder (“Folie a Deux”) - A delusion that develops in the context of a close relationship to another person with an established delusion

E. Substance-Induced Psychotic Disorder

1. Psychosis associated with intoxication

- a. Alcohol
- b. Amphetamine (including MDMA)
- c. Cannabis
- d. Cocaine
- e. Hallucinogens
- f. Inhalants
- g. Opioids
- h. Phencyclidine (PCP)
- i. Sedatives, hypnotics, anxiolytics

2. Psychosis associated with withdrawal

- a. Alcohol
- b. Sedatives, hypnotics, anxiolytics


3. Psychosis associated with medical treatment

- a. High-dose steroids
- b. L-Dopa

F. Psychotic Disorder Due to a General Medical Condition

1. Common conditions

<b>Common Medical Causes of Psychosis</b>	
<p><b><u>Neurological:</u></b>                      Neoplasms                      Cerebrovascular disease                      Huntington's disease                      Seizure disorder                      Auditory nerve injury                      Deafness                      Migraine                      CNS infection</p> <p><b><u>Metabolic:</u></b>                      Hypoxia                      Hypercarbia                      Hypoglycemia</p>	<p><b><u>Endocrine:</u></b>                      Hyperthyroidism                      Hypothyroidism                      Hyperparathyroidism                      Hypoparathyroidism                      Hypoadrenocorticism</p> <p><b><u>Other:</u></b>                      Fluid and electrolyte disturbance                      Hepatic disease                      Renal disease                      Autoimmune disorders (e.g., SLE)</p>

 Source Undetermined

- 2. Delirium
- 3. Dementia

