



psychiatry
435

Schizophrenia

الفُصام

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- ❖ Please make sure to check the [Editing File](#).
 - ❖ **Color index:** RED important, PURPLE notes and GREY:extra.
 - ❖ Resources: Girl's and boy's 435 slides , first aid 2016
 - ❖ For any suggestions, questions or corrections please contact us (psychiatry435@gmail.com).

Objectives:

- Appreciate that schizophrenia is a serious, brain illness that needs early intervention and comprehensive management approach.
- Enhance his knowledge of schizophrenia including epidemiology, etiology, diagnosis and management.
- Acquire preliminary skills to evaluate and intervene adequately to manage schizophrenic patients.

● Overview:¹

- **Psychotic² Disorders:** are mental illnesses characterized by gross impairment in reality testing and personal functioning.
- Its symptoms include dysfunctions in nearly every capacity of which the human brain is capable perception, inferential thinking, language, memory, and executive functions.
- It is **Not split personality**.
- The illness is called “schizo” (fragmented or split apart)³ “phrenia” (mind).
- In DSM-V : psychotic spectrum.

❖ Schizophrenia:

Is defined by a **group of characteristic symptoms**, such as **hallucinations, delusions, or negative symptoms** (i.e., affective flattening,⁴ alogia, avolition); deterioration in social, occupational, or interpersonal relationships; and continuous signs of the disturbance **for at least 6 months**. It is **not** a single disease but a group of disorders with **heterogeneous** etiologies. [Schizophrenia - definition, symptoms & types](#) (very useful!)

● Epidemiology:

- Found in all societies and countries with equal prevalence and incidence worldwide.
- Annual incidence of 0.5 – 5.0 per 10,000.
- Peak age of onset are 10-25 years for ♂ and 25-35 years for ♀.
- **worldwide prevalence of schizophrenia is about 0.5%–1.9%.**⁵
- Age at first psychotic episode is typically 18–25 years for **men**⁶ and 21-30 years for **women**⁷.
- About one-third attempt suicide.

● Clinical features:⁸

- **Psychotic symptoms (positive symptoms) : Delusion⁹ & hallucinations¹⁰.**
- **Negative¹¹ dimension:¹²**
- The absence of something that should be present, such as **Avolition** (lack of motivation).
- **Affective flattening or blunting:** Diminished emotional expression

¹summarizing schizophrenia : 28 years old (young adult), single , male & female equal chances ,brought to emergency , started 9 months ago , talking to himself ,hospitalization , auditory hallucination , slower to develop than his brothers , smoking tobacco , smoke hash (number 1 risk factor) , using of amphetamine , alcohol is not risk factor schizophrenia .

²Psychiatric illnesses divided into: 1- **neurosis**: patient still in his mind but have for example(social phobia or depression)

2- **Psychotic** : الأمراض الذهانية و يصنف الفصام من ضمنها : because i can see it.

³ عقل منفصل عن الواقع وليس شخصيات منفصلة

⁴ مافيه اي تفاعل مع المحيط الي حوله.

⁵ كل 100 شخص منهم واحد مصاب.

⁶ In males early onset and start with negative symptoms ,Bad prognosis.

⁷ Late onset , more stable.

⁸ جداً مهمة

⁹ ضلالات او شكوك (مثلا ماياكل اكل البيت لانه متأكد ان احد ببسمة)

¹⁰ Auditory hallucination

¹¹ تسمى سالبة لأن المفروض انها موجودة لكن في هذه الحالة سوف تكون غير موجودة

¹² **Avolition ,Affective,Alogia and Anhedonia**

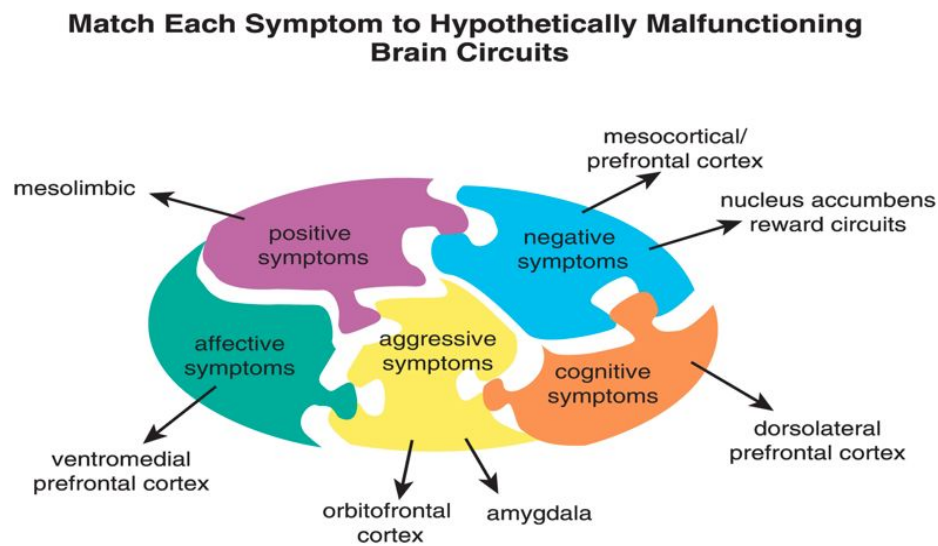
- **Alogia** is characterized by a diminution in the amount of spontaneous speech.
- **Anhedonia** is the inability to experience pleasure.
- Social withdrawal.
- **The disorganized dimension:** includes **disorganized speech and behavior** and inappropriate affect.
- **Cognitive deficits :** Attention , memory , verbal fluency¹³ and executive function.
- **Mood symptoms:** ¹⁴Depression , anxiety , suicidal behavior, hostility ¹⁵and aggression¹⁶.

All these features lead to functional impairment ¹⁷

- **Other clinical features :**
- **Premorbid**¹⁸ history includes schizoid¹⁹ or schizotypal personalities, few friends & exclusion of social activities.
- **Prodromal features**²⁰ include obsessive compulsive behaviors , attenuated positive psychotic features.

Stage	Typical features
Prodromal phase	Insidious onset occurs over months or years; subtle behavior changes include social withdrawal, work impairment, blunting of emotion, avolition, and odd ideas and behavior.
Active phase	Psychotic symptoms develop, including hallucinations, delusions, or disorganized speech and behavior. These symptoms eventually lead to medical intervention.
Residual phase	Active-phase symptoms are absent or no longer prominent. There is often role impairment, negative symptoms, or attenuated positive symptoms. Acute-phase symptoms may reemerge during the residual phase ("acute exacerbation").

● **Match each symptoms to hypothetically malfunctioning brain circuits:**^{21 22}



¹³ مافيه طلاقة في الكلام
¹⁴ في بداية المرض يكون بحس ان فيه شيء غلط و ان هذا التغيير الي جالس يصير مو هو فيكون متوتر و مكتئب و ممكن تؤدي للانتحار (نسبة الانتحار في بدايات المرض جداً عالية).
¹⁵ الاستعداد للعوانية
¹⁶ الفعل العدوانى بعد ذاته

¹⁷ راحت بعض الاعراض بس باقي ما رجع طبيعي = residual \ بدأ المرض = active \ قبل المرض = pro

¹⁸ ما قبل المرض بسنوات

¹⁹ شخصية منعزلة , وذلك لاي معنى ان كل شخصية منعزلة مصاب بمرض الفصام

²⁰ الاعراض التي تسبق حدوث المرض بشكل نهائى (قبل المرض بأيام وأسابيع)

²¹ أغلبها في ال prefrontal وهذا يدل على أهميتها \ مطلوب تعرفون كل واحد بأى لوب بصير .مهمة الصورة.

**22 Overactivity of the mesolimbic pathway (positive symptoms) : will increase dopamine .
 & in mesocortical pathway dysfunction (negative symptoms) : low dopamine.**

(if the patient had low dopamine he will struggle in thinking and also he will experience **negative symptoms**).

● **Other symptoms²³:**

- **Lack insight:** they do not believe they are ill and reject the idea that they need treatment.
- **Non localizing neurological soft signs²⁴:** such as abnormalities in stereognosis, balance.
- **In active sex drive.**
- **Substance abuse²⁵:** Is common and includes alcohol and other drugs It is thought that many schizophrenic patients abuse substances in an attempt to lift their mood, boost their level of motivation, or reduce their medication side effects.

● **Etiology:²⁶**

→ Exact etiology is **unknown**.

1. Genetics factors: A wide range of genetic studies strongly suggest a genetic component to the inheritance of schizophrenia that outweighs the environmental influence. These include: **family studies, twin studies and chromosomal studies.**

★ **Important percentages :²⁷**

- **Siblings of** schizophrenic patients have about a **10%** chance of developing schizophrenia.
- children who have **one parent** with schizophrenia have a **5%–6%** chance.
- **17%** for persons with **one sibling and one parent** with schizophrenia
- **46%** for the children of **two schizophrenic parents.**
- **Monozygotic twins** (التوائم المتشابهة) an average of **46%**, compared with **14%** concordance in **dizygotic twins.**

2. Psychosocial Factors:

- In family dynamics studies, no well-controlled evidence indicates specific family pattern plays a causative role in the development of schizophrenia.
- **High Expressed Emotion family : increase risk of relapse.**

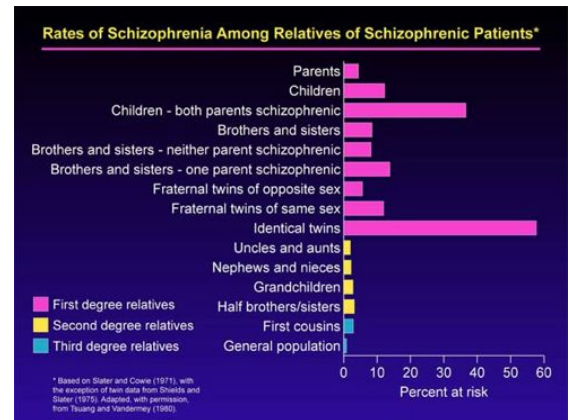
3. Stress-Diathesis Model:

- Integrates biological, psychosocial and environmental factors in the etiology of schizophrenia.
- Symptoms of schizophrenia develop when a person has a specific vulnerability that is acted on by a stressful influence.

4. Neurobiology :

Certain areas of the brain are involved in the pathophysiology of schizophrenia:

the limbic system, the frontal cortex, cerebellum, and the basal ganglia.



Dopamine Hypothesis	Too much dopaminergic activity will cause +ve symptoms (whether it is ↑ release of dopamine ↑ dopamine receptors, hypersensitivity of dopamine receptors to dopamine, or
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²³ أشياء ملاحظة ممكن تكون موجودة و ممكن لا.
²⁴ ما تكون لدرجة انها abnormal
²⁵ نسبة كبيرة منهم يكونون يتعاطون مواد (خاصة التدخين).
²⁶ الدكتوراة قالت ممكن تجي في mcq's
²⁷ هذي أهم النسب من الصورة الي تحت ركزت عليها الدكتوراة.

	combinations is not known).
Other Neurotransmitters²⁸	Serotonin, Norepinephrine, GABA, Acetylcholine, Glutamate and Neuropeptides (probably involves multiple neurotransmitters system abnormalities)
Neuropathology²⁹	Neuropathological and neurochemical abnormalities have been reported in the brain particularly in the limbic system, basal ganglia and cerebellum. Either in structures or connections.
Neuroimaging³⁰	Cerebral ventricular enlargement. Sulcal enlargement and cerebellar atrophy. Decreased thalamus size. Abnormalities have been reported in the brain particularly in the limbic system, basal ganglia and cerebellum. Either in structures or connections.
Psychoneuroimmunology³¹	↓ T-cell interleukin-2 & lymphocytes, abnormal cellular and humoral reactivity to neurons and presence of antibrain antibodies. These changes are due to neurotoxic virus ? or endogenous autoimmune disorder ?
Psychoneuroendocrinology	Abnormal dexamethasone suppression test. ↓ LH/FSH. A blunted release of prolactin and growth hormone on stimulation.

- **Schizophrenia: genes plus stressors:**

Schizophrenia is mostly caused by various possible combinations of many **different genes** (which are involved in neurodevelopment, neuronal connectivity and synaptogenesis) **plus stressors³²** from the environment conspiring to cause abnormal neurodevelopment. There is also abnormal neurotransmission at glutamate synapses, possibly involving hypofunctional NMDA receptors .

- **Diagnostic Criteria for Schizophrenia:**

- **Patient's history and mental status examination** are **essential for diagnosis**.

A. ≥ two characteristic symptoms for one month³³, at least one of them is³⁴ (1),(2) or (3):

1. **Delusions**
2. **Hallucinations**
3. **Disorganized speech (frequent derailment or incoherence)**
4. Grossly disorganized or catatonic³⁵ behavior
5. Negative symptoms (diminished emotional expression or lack of drive (avolition))

B. Social, Occupational or self-care dysfunction.

C. Duration of at least 6 months of disturbance:

²⁸ Just know the names of the substances that involved.

²⁹ The atrophy of schizophrenia is non specific , shrinkage over all but swelling in lateral ventricles.

³¹ Does the schizophrenia autoimmune disease? There is **sometime viral infection might trigger** autoimmune processes and that may explain why this is happening.. (theories)

³² That may end up to show schizophrenia as a clinical diagnosis .

³³ تستمر الأعراض لمدة شهر بشكل يومي ، بعد الشهر ما يرجع طبيعي مو شرط يكون فيه هلاوس بس يكون غير مستقر وتكون لمدة 6 أشهر زيادة (6+5+1).
³⁴ لازم وحدة من الثنتين تكون (1-2-3) يعني لو كان عندي 4+5 هنا ما أقدر اشخص بالفصام.

³⁵ تخشبي.

³⁰ فيه صورة لهذي الجزئية بأخر صفحة.

Include at least 1 month of active symptoms that meet Criterion A; in addition of periods of prodromal and residual symptoms)

D. Schizoaffective and mood disorder exclusion.

E. The disturbance is not due to Substance or another medical condition.

**F. If there is history of autism spectrum disorder or a communication disorder of childhood onset:
³⁶ schizophrenia diagnosis is made only if delusion or hallucinations plus other criteria are present.**

 [Schizophrenia diagnosis](#) [Schizophrenia symptoms](#)

● **Mental status examination:**

- **Appearance & behavior:** variable presentations.
- **Mood, feelings & affect :**reduced emotional responsiveness, inappropriate emotion.
- **Perceptual disturbances :** hallucinations, illusions.
- **Thought:**
 - Thought content (delusions).
 - Form of thought (looseness of association)³⁷.
 - Thought process (thought blocking , poverty of thought content, poor abstraction³⁸and perseveration³⁹).
- **Impulsiveness, violence, suicide & homicide.**
- **Cognitive functioning.**
- **Poor insight and judgment.**

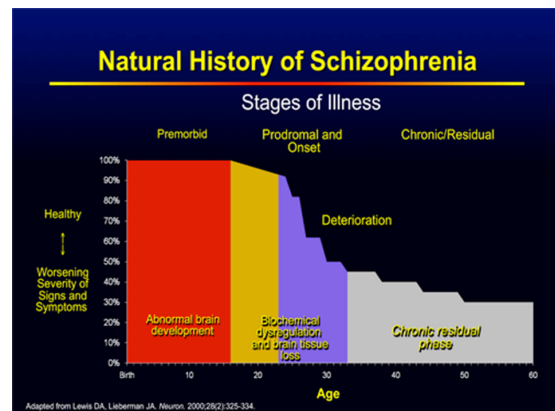
 [Mental State Examination](#) [Mental State Exam](#)

● **Clinical course:**

- Acute exacerbation with increased residual impairment.
- **Full recovery very rare.**⁴⁰
- Longitudinal course **downhill**⁴¹. look to the pic

● **Prognosis:**⁴²

Good outcome	Poor outcome
<ul style="list-style-type: none"> - Obvious precipitating factors. - Good response to Tx (treatment). - Good supportive system. 	<ul style="list-style-type: none"> - Lack of precipitating factors. - Multiple relapses. - Negative symptoms (ما تتحسن بشكل جيد)



³⁶ يعني لو عندي طفل ا مرهق كان عنده توحد او اضطرابات في التواصل هنا اكتفي وقت التشخيص بعرض واحد فقط.

³⁷ مافيه ترابط الأفكار

³⁸ يأخذون الأشياء حرفياً (مجردة)

³⁹ Keep the same answer for different questions

⁴⁰ ممكن يكون مستقر بس يرجع طبيعي تمام مره نادر.

⁴¹ يوصل لدرجه يكون متشرد

⁴² الصورة مهمة (table 5-5) ، الجدول فيه الأشياء الغير موجودة في الصورة

TABLE 5-5. Features associated with good and poor outcome in schizophrenia

Feature	Good outcome	Poor outcome
Onset	Acute	Insidious
Duration of prodrome	Short	Since childhood
Age at onset	Late 20s to 30s	Early teens
Mood symptoms	Present	Absent
Psychotic or negative symptoms	Mild to moderate	Severe
Obsessions/compulsions	Absent	Present
Gender	Female	Male
Premorbid functioning	Good	Poor
Marital status	Married	Never married
Psychosexual functioning	Good	Poor
Neurological functioning	Normal	+ Soft signs
Structural brain abnormalities	None	Present
Intelligence level	High	Low
Family history of schizophrenia	Negative	Positive

● **Differential diagnosis:** (Not schizophrenia !!)

Primary Psychiatric disorders:

- **Schizophreniform disorder** : lasts for 1-6 months.
- **Brief psychotic disorder** : not more than 1 month.
- **Delusional disorder**: delusion only , more than 1 month.
- **Schizoaffective disorder**⁴³: An uninterrupted period of illness during which there is a **major mood episode** (major depressive or manic) concurrent with Criterion A of schizophrenia. There is Delusions or hallucinations for 2 or more weeks in the absence of a major mood episode during the illness course
- **Mood disorders**
- **Personality disorders**: (schizoid, schizotypal & borderline personality)
- **Factitious disorder** : in which a person deliberately and consciously acts as if he or she has a physical or mental illness when he or she is not really sick because of an inner need to be seen as ill, not to achieve a clear benefit,
- **Malingering** :exaggerating the symptoms of mental or physical disorders for a variety of "secondary gain" motives

Secondary psychiatric disorders⁴⁴:

- **Substance-induced disorders**
- **Psychotic disorders due to another medical disorder** : Epilepsy (complex or partial), CNS diseases, Trauma and other
- **Catatonia associated with another mental disorder (catatonia specifier).**
- **Catatonic disorder⁴⁵ due to another medical condition.**

⁴³ يعني يكون المريض عنده هلاوس وضلالات لمدة اسبوعين وبعدها تكون تروح وتجي لكن تبقى ال mood symptoms مره واضحه.
⁴⁴ عندي أعراض الفصام لكن نتيجة لمرض آخر.

⁴⁵ The predominant clinical features seen in the **catatonic** subtype of **schizophrenia** involve disturbances in a person's movement. Affected people may exhibit a dramatic reduction in activity, to the point that voluntary movement stops

- **Unspecified catatonia.**



[Illnesses Confused with Schizophrenia](#)

- **Treatment:**

- ★ **Psychosocial therapies:**

- **Assertive community treatment (ACT) programs:** careful monitoring of patients through mobile mental health teams.(Group therapy)
- **Family oriented therapy.**⁴⁶
- **Cognitive rehabilitation:** involves the remediation of abnormal thought processes known to occur in schizophrenia, using methods pioneered in the treatment of brain-injured persons.
- **Social skills training (SST):** aims to help patients develop more appropriate behavior.
- **Psychosocial rehabilitation:** serves to integrate the patient back into his or her community rather than segregating the patient in separate facilities.
- **Vocational rehabilitation:** may help a patient obtain supported employment, competitive work in integrated settings, and more formal job training programs.
- **Individual psychotherapy.**

- ★ **Hospitalization:** indications for hospitalization:

1. When the illness is new, to rule out alternative **diagnoses** and to stabilize the dosage of antipsychotic medication.
2. For **special medical procedures** such as electroconvulsive therapy
3. When aggressive or assaultive behavior **presents a danger to the patient or others.**
4. When the patient becomes suicidal.
5. When the patient is **unable to properly care for himself**(e.g.,refuses to eat or take fluids).
6. When medication side effects become disabling or potentially **life threatening** (e.g, neuroleptic malignant syndrome)

- ★ **Biological therapies:**⁴⁷

- **Antipsychotic medications** are the mainstay of the treatment of schizophrenia.Generally, they are remarkably safe.Two major classes:
 - Conventional, (1st generation) e.g. haloperidol, chlorpromazine.
 - Atypical, 2nd generation (Serotonin-dopamine receptor antagonists) e.g. Risperidone, **clozapine**⁴⁸, olanzapine).
 - **Depot**⁴⁹ forms of antipsychotics eg. Risperidone Consta is indicated for poorly compliant patients.
- **Electroconvulsive therapy (ECT):** for catatonic or poorly responding patients to medications.
- **Side effects of antipsychotics**⁵⁰:
 - **High Potency** typical antipsychotics: **Neurological side effects.**
 - **Low Potency** typical and atypical antipsychotics: **many other side effect.**

⁴⁶ Families those are over involved or critical to the patient .

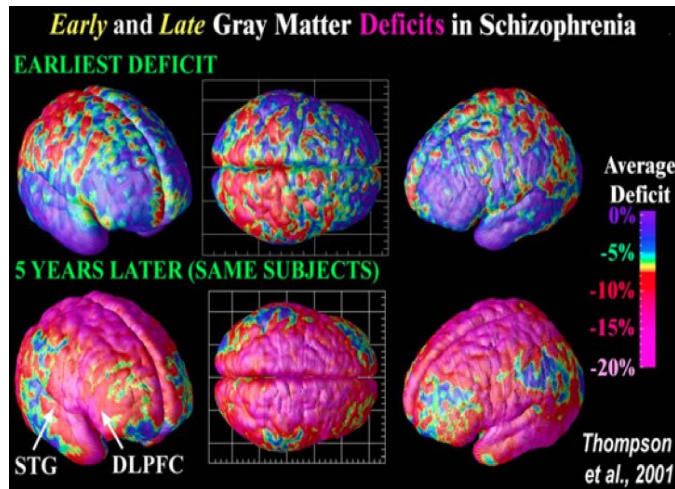
⁴⁷ For more explanations see the pharmacology lecture (drugs used in schizophrenia)

⁴⁸ Clzapine is a strong antipsychotic , but its use as a third choice because it do brain cytosin and reduce seizure threshold

⁴⁹ ابره تقعد في الدم اسبو عين او شهر

⁵⁰ The side effect of first generation antipsychotics drugs is **Neuroleptic malignant syndrome**

Neuroimaging⁵¹:



Extra :

Schizophrenia

Chronic mental disorder with periods of psychosis, disturbed behavior and thought, and decline in functioning lasting > 6 months. Associated with ↑ dopaminergic activity, ↓ dendritic branching.

Diagnosis requires at least 2 of the following, and at least 1 of these should include 1–3 (first 4 are “positive symptoms”):

1. Delusions
2. Hallucinations—often auditory
3. Disorganized speech
4. Disorganized or catatonic behavior
5. Negative symptoms (affective flattening, avolition, anhedonia, asociality, alogia)

Brief psychotic disorder—lasting < 1 month, usually stress related.

Schizophreniform disorder—lasting 1–6 months.

Schizoaffective disorder—> 2 weeks of hallucinations or delusions without major mood episode (major depression or mania), plus periods of concurrent major mood episode with schizophrenic symptoms.

Frequent cannabis use is associated with psychosis/schizophrenia in teens.

Lifetime prevalence—1.5% (males = females, African Americans = Caucasians). Presents earlier in men (late teens to early 20s vs late 20s to early 30s in women). Patients are at ↑ risk for suicide.

Ventriculomegaly on brain imaging.

Treatment: atypical antipsychotics (eg, risperidone) are first line.

Neurotransmitter changes with disease

DISORDER	NEUROTRANSMITTER CHANGES
Alzheimer disease	↓ ACh ↑ glutamate
Anxiety	↑ norepinephrine ↓ GABA, ↓ 5-HT
Depression	↓ norepinephrine ↓ 5-HT, ↓ dopamine
Huntington disease	↓ GABA, ↓ ACh ↑ dopamine
Parkinson disease	↓ dopamine ↑ ACh
Schizophrenia	↑ dopamine

Understanding these changes can help guide pharmacologic treatment choice.

⁵¹ كل ما كان اللون وردي أكثر (-20%) كل ما زاد ال atrophy (قل حجم الدماغ).

**Thank you for checking our team
Good luck.**

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