Revised & Approved

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Psychiatry Team 439

Schizophrenia

Editing File

Click here for the summary!

- Important
- Dr's notes
- Only in male slides
- Only in female slides
- Extra information
- Reference from Dr.

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.

Introduction

Psychotic Disorders** الاضطرابات النفسية

- Definition: Mental illnesses characterized by gross impairment in reality testing and personal functioning
- Symptoms: include dysfunctions in nearly every capacity of which the human brain is capable; **perception, inferential thinking, language, memory, and executive functions.**
- In DSM-V : Psychotic spectrum. **DSM-5 stands for: D**iagnostic and **S**tatistical Manual of **M**ental Disorders, **5**th Edition. It is the source used for diagnosis of many psychotic disorders **including Schizophrenia.**

DSM-5 Schizophrenia Spectrum and Other Psychotic Disorders** READ ONLY

Some of these syndromes are associated with **addiction** and some are associated with **personality**.

- Schizotypal personality disorder
- Delusional disorder
- Brief psychotic disorder
- Schizophreniform disorder
- **Schizophrenia**
- Schizoaffective disorder
- Substance/medication-induced psychotic disorder
- Psychotic disorder due to another medical condition
- Catatonia associated with another mental disorder (catatonia specifier)
- Catatonic disorder due to another medical condition
- Unspecified catatonia
- Other specified schizophrenia spectrum and other psychotic disorder
- Unspecified schizophrenia spectrum and other psychotic disorder

Keywords

	Definition	Example
Psychosis	Significant transient or persistent impairment in **reality testing.** A disconnect from reality characterized by delusions, hallucinations, disorganized thinking and behavior.	
Delusions (Disorders of Thought Content)	Fixed, **false beliefs** that are not shared by the general population. Maintained **in spite of proof** to the contrary. Can be bizarre (ex. involving supernatural forces) or non-bizarre (ex. fear that organized crime is targeting someone in the family).	A man tells his doctor that his landlord is poisoning him with toxic gas.
Illusion (Disorders of Perception)	Misperception of **real** external stimuli.	An anxious woman interprets the sound of a door slamming as a shot being fired from a gun.
Hallucination (Disorders of Perception)	Perceptual abnormalities in which sensory experiences occur in the **absence of external stimuli**. Could be: **visual, auditory, olfactory, tactile, gustatory.**	A cocaine abuser feels bugs crawling under his skin (formication, or "cocaine bugs").
Flat affect (Disordered Affect. Behavior. or Motor Activity)	Diminished range of emotional expression.	A patient appears to be staring far into the distance and displays no discernable emotion.

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Case**

Mr. Schi is a 28 year-old single male who was brought to Emergency room by his family because of **gradual changes in his behavior** started 9 months ago. Since then, he became **agitated**[1]; eat only canned food **but not cooked food made by his family**, afraid of being poisoned. He **talks to himself** and **stares occasionally on the roof of his room**. He had two brief psychiatric hospitalizations in last 3 years that were precipitated by anger at his neighbor and **voices commenting about his behavior.** His personal history indicated that he was a healthy child, but his parents reported that he was a bed wetter and seemed slower to develop than his brothers and sisters. Schi smokes tobacco frequently to calm himself. During his early **adolescence he used to smokes Hash** heavily plus occasional use of **amphetamine**. He stopped both Hash and Amphetamine use 5 years ago.

Definition

A chronic psychiatric disorder characterized by episodes of psychosis and abnormal behavior lasting **at least 6 continuous months**. It is defined by a group of characteristic symptoms of psychosis such as:

- **Hallucinations**
- **Delusions**
- Negative Symptoms (ex. Flat affect, avolition, alogia)
- Deterioration in social, occupational, or interpersonal relationships

- Schizo | phrenia: Schizo means "fragmented or split", and phrenia means "mind" → **Split mind**
  - **It is not a split personality** ما هي انفصام الشخصية

Epidemiology

It is a group of disorders with heterogeneous etiologies. Found in all societies and countries with **equal** prevalence & incidence worldwide.*

Peak Age of First Episode

It's earlier than depression

Male = (10,18)-25 yrs

Female = (21,25)-(30,35) yrs

Females have better prognosis than males

About one-third attempt suicide*

At the start of schizophrenia patients don't lose insight, they know that there's something wrong going on. Instead of solving the problem, they end their lives.

Annual Incidence

0.5-5 for every 10000 people

Prevalence (very low)

0.6-1.9% , 0.5-1%

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Etiology

★ Genetics It's the main factor. Why? Because you can not change it

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. Percentages of developing schizophrenia are seen in the following conditions. Exact percentages are not important. Only remember which is higher.

Children who have one parent with schizophrenia	Siblings of schizophrenic patients	Dizygotic twins	Person with one sibling and one parent with schizophrenia	Children of **two schizophrenic parents**	**Monozygotic twins**
5%–6%	10%	14%	17%	**46%**	**46%**

Neurobiology

- **Dopamine Hypothesis:** too much dopaminergic activity (whether it is ↑ release of dopamine, ↑ dopamine receptors, hypersensitivity of dopamine receptors to dopamine, or combinations is **not known**).
- **Other Neurotransmitters**: Serotonin, Norepinephrine, GABA, Glutamate (hypofunction in NMDA receptors) and neuropeptides.
- Psychoneuroimmunology: ↓ T-cell interleukin-2 & lymphocytes, abnormal cellular and humoral reactivity to neurons and presence of anti brain 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.
- Certain areas of the brain are involved in the pathophysiology of schizophrenia: the limbic system, the frontal cortex, cerebellum, and the basal ganglia

Table 9-4. Biochemical Theories of Schizophrenia

Neurotransmitter	Dopamine	Serotonin	Glutamate	Nicotine	GABA
Change	Increase	Increase	Increase/decrease	Decrease	Decrease
Effects	Positive symptoms	Positive and negative symptoms	PCP (glutamate antagonist) leads to schizophrenia-like symptoms	Cognition	Leads to hyperactivity of dopaminergic neurons

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Etiology

Neuroimaging and Neuropathology

- Cerebral ventricular enlargement* It's not specific since it can also be seen in dementia
- 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

Brain Area	Ventricles	Symmetry	Limbic System	Prefrontal Cortex	Thalamus	Basal Ganglia and Cerebellum
Change	Increase	Decrease	Decrease	Decrease	Decrease	Increase/decrease

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. it is proven that the increased family involvement of a patient diagnosed with schizophrenia might increase the chances of a relapse

★ 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.
- It does not necessarily mean that the stress is only psychological, but also other factors which are biological, psychosocial, and environmental such as usage of drugs or substances.

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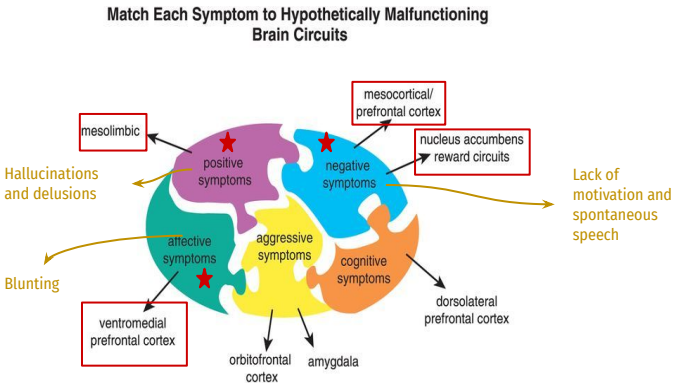
Clinical features* or Symptoms*

- Schizophrenia typically manifests with a prodrome (early signs) of **negative** symptoms and psychosis (like social withdrawal) that precedes the **positive** psychotic symptoms (like hallucinations and bizarre delusions).
- They all lead to functional impairments in: work, school, interpersonal relationships and self care *



Positive Psychotic أعراض ظاهرة	**Delusion** (fixed false beliefs) and **hallucinations**
Negative Psychotic Symptoms أعراض غير ظاهرة	• The absence of something that should be present, such as **volition** (lack of motivation). • Diminished emotional expression **(affective flattening or blunting)** ما فيه تفاعل مع الخبر المفرح او المحزن • **Alogia** is characterized by a diminution in the amount of spontaneous speech يجاوب على الاسئله بس ما يبادر • **Anhedonia** is the inability to experience pleasure • **Social withdrawal** • Poverty of speech • Poor grooming
Disorganized Dimensions	It includes disorganized **speech** and **behavior** and inappropriate affect. يتصرف تصرفات عشوائية وغير واضحة، مثلا يكسر الأشياء او يلبس ملابس بالمقلوب
Cognitive Deficits	In attention, memory, verbal fluency (eg. abstraction) الوظائف المعرفية تبدا تتاثر كل ما تقدم المرض، وتقل فعاليتهم بالمجتمع ومايعرفون يخدمون انفسهم
Mood Symptoms	Depression, anxiety, suicidal behavior, hostility, aggression.
Other	• **Lack insight**; they do not believe they are ill and reject the idea that they need treatment. • **Non localizing neurological soft signs** such as abnormalities in stereognosis, balance. CNS tests are normal, yet there's still a problem in balance. ○ In active sex drive • **Substance abuse** 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

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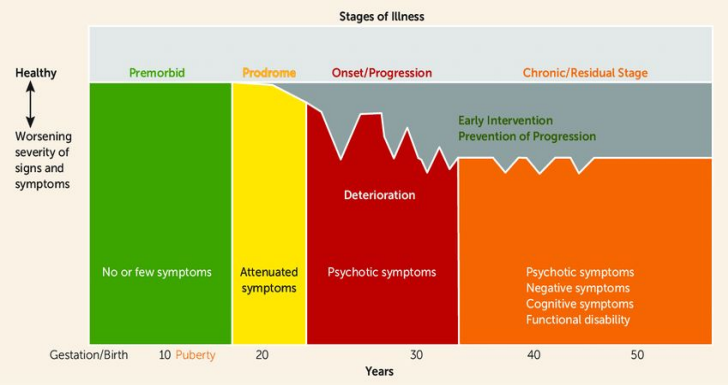
Clinical Features

- No single clinical sign or symptom is pathognomonic for schizophrenia*
- Patient history and mental status are important in diagnosis*
- Features differ based on the phase of schizophrenia*



Stages	Typical features
Premorbid** (<13 years old)	History of schizotypal personality, few friends, exclusion of social activity
Prodromal phase (Adulthood)	**Insidious onset occurs over months or years;** subtle behavior changes include social withdrawal,work, impairment, blunting of emotion, avolition, and odd ideas and behavior. **
	Obsessive-Compulsive Disorders (OCDs) and positive psychotic features**
Acute phase **	Psychotic symptoms develop, including hallucinations, delusions, or disorganized speech and behavior. These symptoms eventually lead to medical intervention.
Residual phase بعد ما يعالج المريض	Active-phase symptoms are absent or no longer prominent there is often role impairment, negative symptoms, or attenuated positive symptoms. Active-phase symptoms may re-emerge during the residual phase (acute exacerbation).

Clinical Course

01 Longitudinal course is downhill

02 Acute Exacerbation with increased residual impairment

03 Full recovery is very rare

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Diagnostic Criteria (DSM-5)

A	**≥ 2 characteristic symptoms for 1 month, at least one of them is (1),(2) or (3)** 1. Delusions 2. Hallucinations 3. Disorganized speech (frequent derailment or incoherence) (frequent derailment is when a person jumps from one idea to another unrelated or indirectly related idea) 4. Grossly disorganized or catatonic behavior 5. Negative symptoms (Diminished emotional expression or lack of drive) (Avolition)
B	Social, Occupation or self-care dysfunction
C	Duration of at least 6 months of disturbance (Include at least one month of active symptoms that meet Criterion A; in addition of periods of prodromal and residual symptoms)
D	Schizoaffective and mood disorder exclusion
E	Disturbance is not due to substance or other medical conditions
F	If there is history of autism spectrum disorder or a communication disorder of childhood onset, schizophrenia diagnosis is made only if delusion or hallucinations plus other criteria are present.

Mental Status Examination (MSE)

- Appearance & behavior (variable presentations) غالبا يصير غير مهندم
- Mood, feelings & affect (reduced emotional responsiveness, inappropriate emotion)
  ممكن نسأله عن الألم وبالمقابل يبتسم
- Perceptual disturbances (hallucinations, illusions)
  Hallucinations: disturbance in one of the 5 senses without any stimuli
- Thought:
  - Thought content (delusions)
  - Form of thought (looseness of association) عدم ترابط في الأفكار، يتكلم عن النوم وفجاه عن الأخبار
  - Thought process: عدم تسلسل في الأفكار
    - Thought blocking
    - Poverty of thought content (patient doesn't answer all questions asked by doctor, and only speaks one or two words at time)
    - Poor abstraction **Abstract thinking** is the ability to absorb information from our senses and make connections to the wider world. Ability to understand symbolism. مثلا لما نساله وش معني مد رجولك علي قد لحافك؟ يقول اللحاف قصير
    - Preservation يجاوب علي كل الاسئلة بنفس الجواب
- Impulsiveness, violence, suicide & homicide - Cognitive functioning -poor insight and judgment. They don't believe they are ill.

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Differential Diagnosis

Primary Psychiatric Disorders

- **Schizophreniform disorder**
- **Brief psychotic disorder**
- **Delusional disorder**
- Mood disorders
- Personality disorder (schizoid, schizotypal & borderline personality)
- **Schizoaffective disorder**
- Factitious disorder
- Malingering

Secondary Psychiatric Disorders

- **Substance induced-disorders**
- **Psychotic disorders due to another medical disorder:**
  - Epilepsy (complex partial)
  - CNS diseases
  - Trauma
  - Others

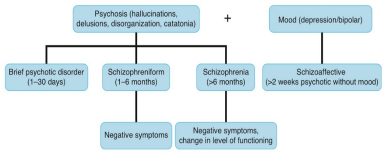

Figure 9-1. Thought Disorders

Other Psychotic Disorders

Disorders	Symptoms	Duration of Symptoms
Brief psychotic disorder	**Psychotic symptoms: Hallucinations, dellusions, disorganized behavior or thinking.** Due to severe stress. Ex: a patient witnessed her husband's death and was in complete shock. After treatment she didn't have another episode	Lasting more than 1 day and less than 1 month of disturbance It's a temporary condition **can** resolve **without treatment**, even though the **psychotic symptoms** may be **treated** by physicians (psychiatrists) with medication.
Delusional disorder	Delusion only. **No dysfunction.** Without a mood or other psychotic symptoms. Most people are generally employed and self supporting	More than 1 month
Schizophreniform disorder	**Psychotic symptoms: Hallucinations, dellusions, disorganized behavior or speech**	1-6 month of disturbance
Schizoaffective disorder Very hard to diagnose	• An uninterrupted period of illness during which there is a **major mood episode** (major depressive or manic) concurrent with **Criterion A of schizophrenia**. • Must have at least 2 weeks of psychotic symptoms (delusions or hallucinations) in the absence of a major mood episode.	**Explanation of symptoms:** It shares symptoms with both schizophrenia and mood disorders, so The patient has episodes of delusions and hallucinations then these symptoms stop after two weeks they become manic and depressed (mood episode).lastly the hallucinations and delusions start again (schizophrenic episode)
Substance-induced psychotic disorder		
Psychotic Disorders due to another medical condition		

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Treatment

Reasons to hospitalize patients with schizophrenia:

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 **(ECT)***
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 or herself (e.g.,refuses to eat or take fluids) *
6. When medication side effects become disabling or potentially life threatening **(e.g, neuroleptic malignant syndrome)**
7. Establishing an effective association between patient & community supportive systems*

Biological Therapy

- **Antipsychotic medications** are the mainstay of the treatment of schizophrenia. They are remarkably safe. نحتاج شهرين عشان نقول العلاجات أعطت استجابة
- **There are two major classes:**
  1. Conventional (1st generation) التقليدية
     e.g. haloperidol, chlorpromazine.
  2. Atypical (2nd generation)
     (Serotonin-dopamine receptor antagonists)(e.g. Risperidone, clozapine, olanzapine).
- **Depot forms** of antipsychotics الحقن
  eg. Risperidone Consta is **indicated for poorly compliant patients**. (IM) they take it every 2 weeks
- Electroconvulsive therapy (ECT) for catatonic or poorly responding patients to medications

Side effects of Antipsychotic drugs**

- **High** Potency typical antipsychotics: Neurological side effects **Low** Potency typical and atypical antipsychotics: many other side effects**

RECEPTOR BLOCKADE AND ANTIPSYCHOTIC SIDE EFFECTS[2]

Receptor Type	*Side Effects*
D_2	EPS, prolactin elevation
M_1	Cognitive deficits, dry mouth, constipation, increased heart rate, urinary retention, blurred vision
H_1	Sedation, weight gain, dizziness
α_1	Hypotension
$5\text{-}HT_{2A}$	Anti-EPS (?)
$5\text{-}HT_{2C}$	Satiety blockade

D=dopamine; EPS=extrapyramidal symptoms; M=muscarine; H=histamine; 5-HT=serotonin.

Psychosocial Interventions

- **Assertive community treatment (ACT) programs**: (careful monitoring of patients through mobile mental health teams*)
- **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*)
- **Family therapy**
- **Group therapy**

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Features associated with altering prognosis

Feature	Good Prognosis	Bad Prognosis
Onset	Acute	Insidious
Duration of prodrome	Short	Since childhood
Age of onset	Late 20s - 30s	Early teens
Mood symptoms	Present	Absent
Psychotic symptoms (positive or negative)	Mild to moderate	Severe
Obsessions/compulsion وساوس عشوائيه بدون هدف	Absent	Present
Gender	Female	Male more aggressive
Premorbid functions	Good	Poor
Marital state	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
Relapse	-	Multiple relapses
Response to treatment	Good response	-
Precipitating factors	Obvious	Lack of PF
Supporting system	Good	-

MCQs :

1. Which of the following it NOT a Psychosocial therapy method?			
A. Vocational therapy	B. Social skills training	C. Electroconvulsive therapy (ECT)	D. Family oriented therapies

2. Which of the following is a Good Prognosis Factors ?			
A. Young age of onset(males)	B. Acute onset	C. Insidious onset	D. Multiple relapse

3. Which of the following is NOT a diagnostic criteria?			
A. Social, Occupation or self-care dysfunction	B. Schizoaffective and mood disorder exclusion	C. Disturbance is not due to substance or other medical conditions	D. There's history of autism or communication disorder of childhood onset

4. The most frequent period for onset of Schizophrenia is in:			
A. Childhood	B. Adolescent	C. Adulthood	D. Old age

5. Aggressive symptoms on the patient due to malfunctioning of			
A. mesolimbic system	B. dorsolateral prefrontal cortex	C. nucleus accumbens	D. orbitofrontal & amygdala

6. A child Father has been diagnosed with Schizophrenia. Later on this child has also been diagnosed with Schizophrenia. if the child had a brother younger than him, How likely will he have schizophrenia ?			
A. 5%	B. 46%	C. 17%	D. 14%

Answer Key : 1=C, 2=B, 3=D, 4=B, 5=D, 6=C

G  d Luck!

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