Schizophrenia

**Nature of Schizophrenia and Psychosis: An Overview**

- **Schizophrenia vs. Psychosis**
  - Psychosis – Broad term referring to hallucinations and/or delusions
  - Schizophrenia – A type of psychosis with disturbed thought, language, and behavior
  - Psychosis and Schizophrenia are heterogeneous

- **Historical Background**
  - Benedict Morel – Demence (loss of mind) precoce (early, premature)
  - Emil Kraeplin – Used the term dementia praecox, focused on onset and outcome
  - Eugen Bleuler – Introduced the term “schizophrenia” or “splitting of the mind”
  - Many of Kraeplin and Bleuler’s ideas are still important today
Schizophrenia: The “Positive” Symptom Cluster

- **The Positive Symptoms**
  - Active manifestations of abnormal behavior, distortions of normal behavior
  - Examples include delusions, hallucinations, and disorganized speech

- **Delusions: The Basic Feature of Madness**
  - Gross misrepresentations of reality
  - Examples include delusions of grandeur or persecution

- **Hallucinations: Auditory and/or Visual**
  - Experience of sensory events without environmental input
  - Can involve all senses
  - The nature of auditory and visual hallucinations – Findings from SPECT Studies

Schizophrenia: Formal Thought Disorder

- **Loosening of Associations**
  - Ideas jump from one to another, with the result that the person wanders further and further away from the topic.

- **Poverty of content**
  - Poor communication despite correct grammar and adequate vocabulary

- **Neologisms**
  - The use of new words and phrases, often by forming parts of two or more regular words

- **Clanging**
  - The pairing of words that have no relation to one another beyond the fact that they rhyme or sound alike

- **Word salad**
  - Words and phrases are combined in what appears to be a completely disorganized fashion
Some major language areas of the cerebral cortex

Schizophrenia: The “Negative” Symptom Cluster

- The Negative Symptoms
  - Absence or insufficiency of normal behavior
  - Examples are emotional/social withdrawal, apathy, and poverty of thought/speech

- Spectrum of Negative Symptoms
  - Avolition (or apathy) – Refers to the inability to initiate and persist in activities
  - Alogia – Refers to the relative absence of speech
  - Anhedonia – Lack of pleasure, or indifference to pleasurable activities
  - Affective flattening – Show little expressed emotion, but may still feel emotion
Schizophrenia: The “Disorganized” Symptom Cluster

- **The Disorganized Symptoms**
  - Include severe and excess disruptions in speech, behavior, and emotion
  - Examples include rambling speech, erratic behavior, and inappropriate affect

- **Nature of Disorganized Speech**
  - Cognitive slippage – Refers to illogical and incoherent speech
  - Tangentiality – “Going off on a tangent” and not answering a question directly
  - Loose associations or derailment – Taking conversation in unrelated directions

Schizophrenia: The “Disorganized” Symptom Cluster

- **Nature of Disorganized Affect**
  - Inappropriate emotional behavior (e.g., crying when one should be laughing)

- **Nature of Disorganized Behavior**
  - Includes a variety of unusual behaviors
  - Catatonia – Spectrum from wild agitation, waxy flexibility, to complete immobility
Subtypes of Schizophrenia

- Paranoid Type
  - Intact cognitive skills and affect, and do not show disorganized behavior
  - Hallucinations and delusions center around a theme (grandeur or persecution)
  - The best prognosis of all types of schizophrenia
- Disorganized Type
  - Marked disruptions in speech and behavior, flat or inappropriate affect
  - Hallucinations and delusions have a theme, but tend to be fragmented
  - This type develops early, tends to be chronic, lacks periods of remissions

Subtypes of Schizophrenia

- Catatonic Type
  - Show unusual motor responses and odd mannerisms (e.g., echolalia, echopraxia)
  - This subtype tends to be severe and quite rare
- Undifferentiated Type
  - Wastebasket category
  - Major symptoms of schizophrenia, but fail to meet criteria for another type
- Residual Type
  - One past episode of schizophrenia
  - Continue to display less extreme residual symptoms (e.g., odd beliefs)

Other Disorders with Psychotic Features

- Schizophreniform Disorder
  - Schizophrenic symptoms for a few months
  - Associated with good premorbid functioning; most resume normal lives
- Schizoaffective Disorder
  - Symptoms of schizophrenia and a mood disorder are independent of one another
  - Prognosis is similar for people with schizophrenia
  - Such persons do not tend to get better on their own
Other Disorders with Psychotic Features

- **Delusional Disorder**
  - Delusions that are contrary to reality without other major schizophrenia symptoms
  - Many show other negative symptoms of schizophrenia
  - Type of delusions include erotomaniac, grandiose, jealous, persecutory, and somatic
  - This condition is extremely rare, with a better prognosis than schizophrenia

Additional Disorders with Psychotic Features

- **Brief Psychotic Disorder**
  - Experience one or more positive symptoms of schizophrenia
  - Usually precipitated by extreme stress or trauma
  - Tends to remit on its own

- **Shared Psychotic Disorder**
  - Delusions from one person manifest in another person
  - Little is known about this condition

- **Schizotypal Personality Disorder**
  - May reflect a less severe form of schizophrenia

Classification Systems and Their Relation to Schizophrenia

- **Process vs. Reactive Distinction**
  - Process – Insidious onset, biologically based, negative symptoms, poor prognosis
  - Reactive – Acute onset (extreme stress), notable behavioral activity, best prognosis

- **Good vs. Poor Premorbid Functioning in Schizophrenia**
  - Focus on person’s level of function prior to developing schizophrenia
  - No longer widely used

- **Type I vs. Type II Distinction and Schizophrenia**
  - Type I – Positive symptoms, good response to medication, optimistic prognosis, and absence of intellectual impairment
  - Type II – Negative symptoms, poor response to medication, pessimistic prognosis, and intellectual impairments
Schizophrenia: Some Facts and Statistics

- Onset and Prevalence of Schizophrenia worldwide
  - About 0.2% to 1.5% (or about 1% population)
  - Usually develops in early adulthood, but can emerge at any time

- Schizophrenia Is Generally Chronic
  - Most suffer with moderate-to-severe impairment throughout their lives
  - Life expectancy in persons with schizophrenia is slightly less than average

- Schizophrenia Affects Males and Females About Equally
  - Females tend to have a better long-term prognosis
  - Onset of schizophrenia differs between males and females

- Schizophrenia Appears to Have a Strong Genetic Component

Gender differences in onset of schizophrenia in a sample of 470 patients
Risk of developing schizophrenia

Two adoption research strategies that can be applied to the study of schizophrenia

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Risk for schizophrenia among children of twins
Search for Genetic and Behavioral Markers of Schizophrenia

- The Search for Genetic Markers: Linkage and Association Studies
  - Search for genetic markers is still inconclusive
  - Schizophrenia is likely to involve multiple genes

- The Search for Behavioral Markers: Smooth-Pursuit Eye Movement
  - The procedure – Tracking a moving object visually with the head kept still
  - Tracking is deficit in persons with schizophrenia, including their relatives

Causes of Schizophrenia: Findings From Genetic Research

Summary of Genetic Research

- Risk of schizophrenia increases as a function of genetic relatedness
- One need not show symptoms of schizophrenia to pass on relevant genes
- Schizophrenia has a strong genetic component, but genes alone are not enough
Causes of Schizophrenia: Structural Brain Pathology

- Brains of schizophrenia patients show
  - Reduced volume of temporal and frontal cortex
  - Enlarged ventricles (reflecting loss of brain cells)
    - For 12 of 15 twins, the twin of a schizophrenia patient could be identified by enlarged ventricles
  - Reduced metabolic activity within prefrontal cortex (frontal hypoactivation)

Causes of Schizophrenia: Neurotransmitter Influences

- Neurobiology and Neurochemistry: The Dopamine Hypothesis
  - Drugs that increase dopamine (agonists), result in schizophrenic-like behavior
  - Drugs that decrease dopamine (antagonists), reduce schizophrenic-like behavior
  - Examples include neuroleptics and L-Dopa for Parkinson’s disease
Causes of Schizophrenia: Neurotransmitter Influences

- Refuting the Dopamine Hypothesis
  - Many do not respond to dopamine agonists, indicating role for other neurotransmitter systems
  - Symptoms do not abate for several days after drug produces neurochemical changes
  - Drugs are not helpful in reducing negative symptoms (e.g., flat affect, anhedonia)
  - One of the most effective new drugs for schizophrenia, clozapine, does not work by blocking the D2 receptors (appears to bind to a newly discovered type of dopamine receptor, D4)
  - 5-HT may play a role in interaction with dopamine
Causes of Schizophrenia: Biological Conclusions

- Large inherited factor
- Structural damage in some patients
- Schizophrenia is associated with diffuse neurobiological dysregulation (involving multiple systems)
- May be an interaction between structural and functional components through development
- May also involve Viral Infections During Early Prenatal Development
  - Circumstantial evidence (i.e., fingertip ridges) for prenatal virus

Causes of Schizophrenia: Psychological and Social Influences

- The Role of Psychological Factors
  - Psychological factors likely exert only a minimal effect in producing schizophrenia
- The Role of Stress
  - May activate underlying vulnerability and/or increase risk of relapse
- Family Interactions
  - Families of people with schizophrenia show ineffective communication patterns
  - High expressed emotion in the family is associated with relapse

Medical Treatment of Schizophrenia

- Historical Precursors
- Antipsychotic (Neuroleptic) Medications
  - Medication treatment is often the first line treatment for schizophrenia
  - Began in the 1950s
  - Most reduce or eliminate the positive symptoms of schizophrenia
  - Acute and permanent extrapyramidal and Parkinson-like side effects are common
  - Compliance with medication is often a problem
- Transcranial Magnetic Stimulation
  - Relatively untested procedure for treatment of hallucinations
Psychosocial Treatment of Schizophrenia

- Historical Precursors
- Psychosocial Approaches: Overview and Goals
  - Behavioral (i.e., token economies) on inpatient units
  - Community care programs
  - Social and living skills training
  - Behavioral family therapy
  - Vocational rehabilitation
- Psychosocial Approaches Are Usually a Necessary Part of Medication Therapy
Studies on treatment of schizophrenia from 1980 to 1992

Summary of Schizophrenia and Psychotic Disorders

- Schizophrenia includes a spectrum of cognitive, emotional, and behavioral dysfunctions
- Positive, negative, and disorganized symptom clusters
- DSM-IV and DSM-IV-TR divide schizophrenia into five subtypes
- Other DSM-IV and DSM-IV-TR disorders include psychotic features
- Several causative factors have been implicated for schizophrenia
- Successful treatment rarely includes complete recovery