Chapter 11   Schizophrenia

Learning Objectives

1. Describe the prevalence of schizophrenia and how it varies by gender and ethnicity.
2. Define and describe delusions and hallucinations, as well as the different types of delusions and hallucinations, and describe how they vary and do not vary across cultures.
3. Describe the disorganized thought and speech in schizophrenia.
4. Distinguish between disorganized and catatonic behavior.
5. Describe common negative symptoms of schizophrenia.
6. Discuss the history of diagnostic criteria for schizophrenia, as well as the current criteria for schizophrenia and disorders that are similar to it.
7. Distinguish between Type I and Type II symptoms, as well as between prodromal and residual symptoms.
8. Identify the key features of each of the five subtypes of schizophrenia: paranoid, disorganized, catatonic, undifferentiated, and residual.
9. Describe the prognosis for an individual with schizophrenia and how it might vary according to the gender and age of the affected individual.
10. Discuss the evidence for a genetic transmission of schizophrenia, and which people are most at risk for developing schizophrenia.
11. Discuss the brain areas implicated in schizophrenia, as well as their functions, and be able to discuss how they are different in the brains of people with schizophrenia compared to people without schizophrenia.
12. Discuss both past and recent hypotheses of how dopamine is believed to affect the development and treatment of schizophrenia.
13. Discuss the psychosocial factors associated with schizophrenia and the evidence for them.
14. Discuss the drug therapies most commonly prescribed for schizophrenia, their side effects, which symptoms they treat most effectively, and which ones they do not.
15. Discuss the psychological and social interventions designed for people with schizophrenia.

Biological Theories of Schizophrenia

Genetic Theories

Disordered genes cause schizophrenia, or at least a ________________ to schizophrenia.
Genetic Theories

- _______ (10%) chance of schizophrenia if immediate family member has it
- _______ concordance rate in identical twins
- _______ gene variations linked to schizophrenia
  - More of them one has, the _________ the risk
  - One, e.g., a gene on chromosome 22, doubles the risk

Structural Brain Abnormalities

- Enlarged ventricles

Biological Theories of Schizophrenia

- reduced volume, activity and neuron density in ____________ cortex
- overall, reduced brain volume
- decreased frontal lobe activity associated with ____________ symptoms:
  impaired planning, organization, volition
- increased parietal lobe activity associated with ____________ symptoms:
  voice & pattern recognition; spatial organization

Biological Theories of Schizophrenia

Decreased left hippocampo-amygdala ______________ associated with schizophrenia and high risk of schizophrenia

Birth Complications

- “Complications of pregnancy including bleeding, diabetes, and pre-eclampsia
- Abnormal fetal growth and development including conditions such as low birthweight and reduced ______________
- Complications of delivery including asphyxia and emergency Caesarean section”
- Risk ____________ in schizophrenics compared to nons (similar to risk of cancer in passive smoking)

Neurotransmitter Theories

Dopamine

- Typical antipsychotics reduce the functional level of ____________ in the brain
- Dopamine involved, but too little in frontal lobes, too much in mesolimbic pathway and parietal lobes
Neurotransmitter Theories

- Serotonin: ___________ dopamine neurons in mesolimbic pathway (Fig 11.6, p. 400)
- GABA and glutamate levels abnormal in schizophrenia: both nts are widespread in the human brain

Viral Infection

- Virus
- Mechanisms of action:
  - Some, like herpes & the common cold, detect ___________________
  - Some attack intermediate host’s muscles or eyes
  - Sacculina granifera (barnacle) attaches to crabs and then secretes feminizing hormones that induce maternal behavior in males and females (the crab’s brooding behavior perfect for barnacle reproduction)
  - Common cold irritates respiratory tract to induce dispersal
  - Rabies – a brain parasite – creates aggression to enter victims’ wounds

Viral Infection

Toxoplasma gondii

Two host reproductive cycle:
- Ingested as a protozoan by rats
- Forms cysts in rat’s brain and body
- Cat eats rodent
- Toxo reproduces in cat
- Cat sheds parasite in feces
- Rat ingests protozoan

Viral Infection

- Rats instinctively avoid the smell of cats
- Unless the rat is infected by toxo: then the rat is _____________ to the smell of cats
- There are no other observed effects of toxo infection on rat behavior

Toxoplasma gondii in humans

- _________________ Americans infected
- Toxo infection correlates with some personality variables:
  - Self-doubt
  - Less novelty-seeking in males
  - Increased “open-heartedness” in females
Toxoplasma gondii in humans

Some research implicates toxo infection and schizophrenia

Viral Infection & Schizophrenia

- Retrovirus HERV-W implicated in recent diagnoses of schizophrenia
- At least one epidemiological analysis implicated ____________ simplex II
- Mother’s contraction of a virus during the second trimester increases risk (via __________ effect or side effect of ________________ response?)
- Winter birth (probably due to viral infection)

Psychosocial Perspectives on Schizophrenia

Social drift and urban birth

- Lower classes more often diagnoses of more serious psychiatric illnesses: when symptoms are similar
- Social Causation Hypothesis: poor have more stress – hence vulnerable __________ more at risk
- __________________________: employability problems in schizophrenics cause a downward drift in social status

Stress and relapse

- Stressful events are associated with the onset of schizophrenia; but not consistently
- Stressful events may precipitate schizophrenia in vulnerable individuals

Psychodynamic theory

“Freud hypothesised that schizophrenia is caused by regression to a state of “primary narcissism” (preoccupation with self) [due to harsh mothering] characteristic of the oral stage of development. This results in the ego not being separated from the id, resulting in a loss of contact with reality. Limitations:

- The behaviour of adult schizophrenics does not resemble that of children.
- The model ignores biological influences.
- It is unsupported by any empirical evidence.”*
Communication patterns

- Bateson’s Double-Bind communication
- Communication Deviance
  - Vague
  - Misperceptions & misinterpretations
  - Fragmented, disrupted, poorly integrated communication
  - Harmful only to vulnerable children
- Expressed Emotion
  - Related to relapse (70% 1-year relapse in hi-ee; 27% relapse in lo-ee)
  - Correlational data
  - Hi-ee correlates with negative symptoms & psychopathology in the family members

Cognitive theories

- Cognitive distortions have biological origin
- Attempts to aid client to use cognition – even faulty cognition – to manage day-to-day affairs
- Goals:
  - Effectively manage problems
  - Function independently
  - Minimal distress

Behavioral theories

“some children who are punished in early life retreat into a more satisfying inner world and are then labelled as “odd”. The label results in more peculiar behaviour and a cycle develops. Adult bizarre behaviour may be rewarded by attention and sympathy. Limitations:
  - The onset of schizophrenic symptoms (often in the late teens) is usually quite sudden and does not correspond to the predictions of this model.
  - The symptoms are far too extreme and bizarre and the beliefs symptoms so extraordinary and outlandish that they could not possibly be caused by a mere label.
  - The behaviour of adult schizophrenics is not generally rewarded by others.
  - The model ignores all biological evidence.”*

Biological Treatments:  ECT, Antipsychotic drugs (Phenothiazines, Butyrophenones, Dibenzodiazepines, Thioxanthenes, Benziosoxazoles, Dibenzoxapines, Indoles, Diphenylbutylpiperidines)

Behavioral, Cognitive, and Social Interventions: Recognition of demoralizing attitudes they may have toward their illness, operant conditioning, modeling, family therapy, token economies, self-help groups, assertive community treatment programs.
Schizophrenia

Positive Symptoms: Type I
- Delusions
  - Persecutory
  - Delusions of Reference
  - Grandiose Delusions
  - Delusions of Thought Insertion
- Hallucinations
- Disorganized Thought and Speech
- Disorganized or Catatonic Behavior

Negative Symptoms: Type II
- Affective Flattening (or Blunted Affect)
  - Severe reduction or complete absence of affective (emotional) responses to the environment
- Alogia
  - Severe reduction or complete absence of speech
- Avolition
  - Inability to persist at common, goal-oriented tasks

Schizophrenia Disorganized Type

DSM-IV Criteria for Schizophrenia
A. Core symptoms: two or more of the following present for at least a 1-month period
   1. Delusions
   2. Hallucinations
   3. Disorganized speech
   4. Grossly disorganized or catatonic behavior
   5. Negative symptoms

DSM-IV-TR Criteria for Schizophrenia, continued
B. Social/occupational functioning: significant impairment in work, academic performance, interpersonal relationships, and/or self-care

DSM-IV-TR Criteria for Schizoaffective Disorder
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.

DSM-IV-TR Criteria for Schizoaffective Disorder, continued
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
Prognosis of Schizophrenia

- **Age and Gender Factors**
  - Life-span development and stabilization
  - Women who develop schizophrenia have a more favorable course of the disorder than do men who develop schizophrenia

- **Sociocultural Factors**
  - Differences between developing and industrialized countries
  - Acceptance of deviant behavior
  - Social response and treatment availability