Schizophrenia

- A person whose behavior are strange and socially inappropriate,
  - whose thoughts are disordered,
  - who may sometimes hallucinate
  - and suffer from delusions is said to be psychotic.

- The outstanding symptom of psychosis is a loss of contact with reality.

- Schizophrenia, paranoia, and some forms of mood and organic disorders involve psychotic symptomology.

- Some types of psychosis, the organic mental disorders, have readily identifiable causes.

- These are the disorders in which there is some clear evidence of brain damage or disruption.

Schizophrenia (continued)

- Some examples of organic brain disorders are:
  - delirium caused by head injury, toxic substance, etc.
  - dementia, caused by Alzheimer’s disease, old age, etc.
  - alcohol amnesia disorder, Korsakoff’s disease

- The causes of other psychotic disorders like schizophrenia and mood disorders are still unknown;
  - thus, even though the crucial causal factors may be biological rather than social, these psychoses are still not classified as organic.

- Some psychologists feel that it may be impossible to separate organic causes from experiential because of the complex interplay between the two.

Schizophrenia (continued)

- The concept of schizophrenia was devised by Swiss psychiatrist Eugen Bleuler in 1911.

- Bleuler decided that some cases of madness could be distinguished from others by the presence of one outstanding symptom:
  - The splitting apart of emotions from intellect.

- This idea led Bleuler to label these cases with the term schizo (split) phrenia (mind).

- A more modern view might interpret the splitting of schizophrenia as a separation of the emotions from reality.

- Schizophrenia does not begin suddenly.

- Family and friends gradually become aware that the person has changed in a variety of subtle ways.

Schizophrenia (continued)

- Typically, there is a diminishing interest in being with other people and a loss of concern for personal hygiene and appearance.

- Job or school performance becomes worse and worse as the person finds it harder to maintain motivation toward any goal.

- Every week more time is spent wrapped in subjective fantasies, and less attention is paid to reality.

- Communication becomes difficult as the person begins to respond more to individualistic perceptions of the situation that others do not share
  - and starts to slip into a way of thinking that is bizarre and impossible for anyone else to follow.

- Emotional responses are frequently absent when one would be expect them and inappropriate when they do appear.

Schizophrenia (continued)

- Finally, the person’s behavior becomes too bizarre for others to cope with and steps are taken to secure medical help.

- By this time patient may be exhibiting:
  - Hallucinations – strange, incorrect sensory perceptions such as hearing voices that are not there and feeling worms crawling under their skin.
  - Delusions – incorrect beliefs frequently involving feelings of persecution, sometimes of grandeur.
  - Catatonia – involves remaining absolutely motionless and speechless for hours at a time.
  - Thought disorder – involving strange, wild mental association and difficulty in understanding and using abstract concepts.
  - Flattened affect – there is a loss of appropriate emotional responses.
Schizophrenia frequently has its onset during adolescence or early adulthood.

According to DSM-IV:
- Schizophrenia is a disorder characterized both by deteriorating ability to function in everyday life and by some combination of hallucinations, delusions, thought disorder, movement disorder, and inappropriate emotional expressions.

Behavioral symptoms:
- Schizophrenia is characterized by:
  - Positive symptoms – behaviors that are present that should be absent
  - Negative symptoms – behaviors that are absent that should be present

Schizophrenia is characterized by:
- Positive symptoms – behaviors that are present that should be absent
- Negative symptoms – behaviors that are absent that should be present.

Behavioral symptoms:
- Schizophrenia is characterized by:
  - Positive symptoms – behaviors that are present that should be absent
  - Negative symptoms – behaviors that are absent that should be present.

Schizophrenia is characterized by:
- Positive symptoms – behaviors that are present that should be absent
- Negative symptoms – behaviors that are absent that should be present.

Behavioral symptoms:
- Schizophrenia is characterized by:
  - Positive symptoms – behaviors that are present that should be absent
  - Negative symptoms – behaviors that are absent that should be present.

Schizophrenia can be either acute or chronic.
- An acute condition has a sudden onset and good prospect for recovery.
- A chronic condition has a gradual onset and a long term course.

In other words some people have permanent schizophrenia, whereas others have one or two episodes followed by a return to normality with no need for further treatment.

Schizophrenia can be either acute or chronic.
- An acute condition has a sudden onset and good prospect for recovery.
- A chronic condition has a gradual onset and a long term course.

In other words some people have permanent schizophrenia, whereas others have one or two episodes followed by a return to normality with no need for further treatment.

Schizophrenia can be either acute or chronic.
- An acute condition has a sudden onset and good prospect for recovery.
- A chronic condition has a gradual onset and a long term course.

In other words some people have permanent schizophrenia, whereas others have one or two episodes followed by a return to normality with no need for further treatment.

One of the most important points in this table is that having a monozygotic twin with schizophrenia increases the risk far more than does a dizygotic twin with schizophrenia.

For monozygotic twins there is about a 48% concordance for schizophrenia.

For dizygotic twins there is 17% concordance for schizophrenia.

Concordance is higher for dizygotic twins than for siblings (9%), even though they have the same genetic resemblance as siblings.

Dizygotic twins have greater environmental similarity, including that of prenatal and early postnatal life.
Monozygotic twins share the same placenta and therefore have a similar prenatal environment. Dizygotic twins have different placentas and their prenatal environment is less similar than monozygotic twins but more similar than siblings. When an adopted child develops schizophrenia, schizophrenia is more probable among the biological relative than the adoptive relatives. One Danish study found schizophrenia in 12.5% of the immediate biological relatives and none of the adopting relatives.

Schizophrenia is more probable among the biological relative than the adoptive relatives. One Danish study found schizophrenia in 12.5% of the immediate biological relatives and none of the adopting relatives.

Monozygotic twins share a common placenta. Dizygotic twins have their own placenta. Two kinds of monozygotic twins; monochorionic twins and dichorionic twins.

Most women with schizophrenia have low income, smoke and drink during pregnancy, and fail to get medical care during pregnancy. Many have poor diet. If their children develop schizophrenia, we cannot be sure that the influence is genetic. Prenatal factors may play a role in schizophrenia. Many people with schizophrenia had problems before or shortly after birth that could have affected their brain development, including poor nutrition during pregnancy, and complications during delivery, such as excessive bleeding, or prolonged labor. Schizophrenia also has been linked to problems in early or middle pregnancy. During the winter of 1944 – 1945, near the end of World War II, Germany blockaded the Netherlands, which depended heavily on imported food.
Schizophrenia (continued)

Prenatal or Neonatal Factors

- The Dutch people endured a near starvation diet until the Allies liberated them in May.
- Women who were in the earliest stages of pregnancy during the starvation period gave birth to a high percentage of babies who later developed schizophrenia.
- Further evidence that the risk may be traced to prenatal difficulties stems from the season-of-birth effect. This is the tendency for people born in winter to have a slightly (5% to 8%) greater probability of developing schizophrenia than people at other times of the year.
- A possible explanation is viral infection. Viral epidemics are most common in the fall.

Schizophrenia (continued)

Neuropathology

- Autopsies of schizophrenic patients show that there appears to be a fairly consistent finding of atrophy in the cerebral cortex and in a part of the cerebellum called the vermis.
- Ninety-seven percent of schizophrenic patient have enlarged lateral ventricle and third ventricle.

Schizophrenia (continued)

Neuropathology

- Lateralization is also different from the normal pattern.
- In most people the left hemisphere is slightly larger than the right, especially in the planum temporale of the temporal lobe, but in schizophrenic people the right hemisphere is slightly larger.
- At a microscopic level the most reliable findings is that cell bodies are smaller than normal, especially in the hippocampus and prefrontal cortex.
- Also, some neurons fail to arrange themselves in the neat, orderly manner typical of normal brains.
Many clinical and basic experimental findings have suggested that abnormally high levels of dopamine receptors stimulation form the basis of schizophrenia. The earliest, simplest dopamine model of schizophrenia argued that this disorder arises from the hyperfunctioning of dopamine circuits. This hyperfunctioning could develop from excessive release of dopamine—a presynaptic effect or an excess of dopamine receptors—a postsynaptic effect. For years, the strongest evidence for this simple hypothesis was the remarkable clinical effects of dopamine blockers in treating schizophrenia.

An alternative possibility is the glutamate hypothesis of schizophrenia. The underlying problem is deficient activity at certain glutamate synapses, especially in the prefrontal cortex. In many brain areas dopamine inhibits glutamate release, or glutamate excites neurons that inhibit dopamine release, or glutamate excites neurons that dopamine inhibits. Therefore increase dopamine would produce about the same effects as decreased glutamate.

Phencyclidine (PCP; angel dust), a drug that inhibits glutamate type MNDA receptors, and produce both positive and negative symptoms of schizophrenia, mimicking schizophrenia even more closely. PCP produces little if any psychotic response in preadolescents. Just as the symptoms of schizophrenia usually begin to emerge well after puberty, so do the psychotic effects of PCP.