MHD 2019  
Schizophrenia & Other Psychotic Disorders

I. Diagnosing Schizophrenia

Criteria A: Active Phase signs and symptoms
Criteria B: Social Occupational Dysfunction: How bad is it?
Criteria C: Time Duration
Criteria D: Another Diagnostic Explanation

Criteria A: Signs & Symptoms
1. Hallucinations
2. Delusions
3. Disorganized thinking
4. Disorganized Behavior
5. Negative Symptoms

Psychosis
Grossly impaired reality testing. Persons incorrectly evaluate the accuracy of their perceptions and thoughts and make incorrect inferences about external reality, even in the face of contrary evidence.
Psychosis commonly means the patient is experiencing delusions and hallucinations. These are also called the “positive” symptoms of schizophrenia. Disorganized thinking is also referred to as psychotic thinking, or psychosis, and is a positive symptom.

1. Hallucinations - perceptions without stimuli;
   - Auditory hallucinations-“hearing voices”; most common type of hallucination
   - Visual hallucinations-“seeing things that aren’t there”; 2nd most common type of hallucination
   - Tactile hallucinations-feeling things that aren’t there, like bugs on or under one’s skin; less common type of hallucination; may be seen in context of various substance withdrawal syndromes
   - olfactory & gustatory hallucinations-smelling, tasting things; rare type of hallucinations

2. Delusions - unfounded, unrealistic belief that is held without supporting evidence and are not amenable to change when conflicting evidence is presented; the person is totally convinced that what they believe is true; will often lead to conflicts with others
   - Non-bizarre delusions-have a certain amount of plausibility when you first hear about it, as you get more and more details it becomes less and less plausible
   - Bizarre delusions-clearly implausible, not understandable, and/or do not derive from ordinary life experiences. Usually easy to identify though can be difficult to judge situations involving different cultures
   - Delusion examples

<table>
<thead>
<tr>
<th>Non-bizarre</th>
<th>Bizarre</th>
</tr>
</thead>
<tbody>
<tr>
<td>My significant other is being unfaithful;</td>
<td>My wife is having an affair with Elvis Presley</td>
</tr>
<tr>
<td>Oprah Winfrey is trying to reach you to ask you to pilot a show for the Oprah Winfrey Network;</td>
<td>Oprah Winfrey (who the I have never met) is desperately in love with me,</td>
</tr>
<tr>
<td>I am being watched/monitored, harassed by my neighbors</td>
<td>Alien controlled neighbors are monitoring/harassing me</td>
</tr>
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</table>

3. Disorganized thinking
   - Symptom must substantially impair effective communication
   - Inferences about thinking are based primarily on the individual’s speech; one’s speech may be
disorganized in various ways:
  Derailment—person talking about a topic...derails (stops)...resumes on a different topic
  Loose associations—person slips off track from one topic to another topic; association between topics is weak or unclear
  Tangential speech-answers are unrelated or only vaguely related to the question
  Incoherence or word salad—severely disorganized speech, nearly incomprehensible

4. **Disorganized behavior**
   Grossly disorganized; may be seen in wide range of possible behaviors.
   Childlike silliness to unpredictable agitation,
   Problems with any form of goal directed behavior; leads to difficulties performing activities of daily living (meal preparation, maintaining personal hygiene)

5. **Negative symptoms**
   affective flattening—lack of emotion; interpersonal emotional cues (facial expression, eye contact, body language) are lacking
   alogia—poverty of speech; brief, laconic, empty replies
   avolition—lack of motivation; inability to initiate and persist in goal directed activities
   anhedonia—lack of pleasure; unable to enjoy activities

   Only need to have any one of the four negative symptoms to qualify as having negative symptoms

**Meeting the Schizophrenia A criteria**

Need to have 2 of the 5 signs and symptoms to meet the A criteria.

In DSM-4:
- Any combination of 2 symptoms could meet the criteria
- If the delusions were bizarre—that alone was enough to meet the A criteria
- If the auditory hallucinations were severe (a voice continually commenting, or multiple voices conversing) that alone was enough to meet the A criteria.

In DSM-5-(adopted May, 2013):
- One of the symptoms must be a “positive” symptom: hallucination, delusion, or disorganized thinking
- Need 2 symptoms: bizarre delusions alone is not enough; multiple voice or single continuous voice is not enough

**Criteria B: Social Occupational Dysfunction, How Bad Is It?**

For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning--work, interpersonal relations, or self-care-- are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic, or occupational achievement).

**Downward Drift Hypothesis**

- It is noted that a disproportionate number of people with schizophrenia are in the low socioeconomic group.

  The downward drift hypothesis posits that the reason is that the social-occupational dysfunction of schizophrenia results in those who start out with resources available to them gradually lose them and drift downward into the low socioeconomic group.
- A significant number, 33%, of the homeless population have schizophrenia

**Criteria C: Time Duration**

Continuous signs of the disturbance that persist for at least 6 months—Criteria A does not need to be met for the entire time
At least 1 month where Criteria A (active phase symptoms) is met
If duration of symptoms < 1 month—diagnosis of brief psychotic disorder or psychosis nos (not otherwise specified)
If total duration of symptoms > 1 month, < 6 months—diagnosis of schizophreniform disorder
Onset of illness—most commonly there is a gradual onset and building of the symptoms of schizophrenia, a prodromal phase. Often it is not realized until after the symptoms have gotten serious (the first break of psychosis), that the behaviors were abnormal and part of a prodromal phase.

Criteria D: Another Diagnostic Explanation

<table>
<thead>
<tr>
<th>Illnesses with psychosis</th>
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<tbody>
<tr>
<td>1. Another psychotic disorder</td>
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<tr>
<td>Schizoaffective disorder, Delusional disorder, Schizophreniform disorder, Brief Psychotic Disorder, Psychosis N.O.S.</td>
</tr>
<tr>
<td>2. Mood disorder with psychosis</td>
</tr>
<tr>
<td>Bipolar disorder w/ psychotic features, Major Depression w/ psychotic features</td>
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<tr>
<td>3. Psychosis due to a substance</td>
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<tr>
<td>Substance Intoxication/Withdrawal, Psychosis secondary to medication reaction</td>
</tr>
<tr>
<td>4. General Medical condition</td>
</tr>
<tr>
<td>Any medical illness, that effects the CNS-neurological, endocrine, metabolic</td>
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<tr>
<td>5. Developmental Disorders</td>
</tr>
<tr>
<td>Autism, Rhett’s disorder, Asperger’s disorder</td>
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<tr>
<td>6. Personality disorders</td>
</tr>
<tr>
<td>Cluster A-paranoid, schizoid, schizotypal</td>
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1. Another psychotic disorder
   Schizoaffective disorder—a major mood episode (major depression, bipolar disorder) is concurrent with Criterion A of Schizophrenia; Major mood symptoms are present for majority of the total duration of the illness; at least one two-week period of hallucinations or delusions without mood symptoms present
   Delusional Disorder—bizarre* or non-bizarre delusion; most common: persecutory, jealousy
   *DSM5 change

2. Mood disorder with psychosis
   Bipolar disorder with psychosis -symptom overlap: grandiosity (delusions?), flight of ideas (disorganized speech)
   Major depression with psychosis-symptom overlap with negative symptoms: anhedonia, avolition (lack of energy), affective flattening (disturbed mood?)

3. Psychosis due to a substance
   Intoxication with Alcohol, any illicit drug
   Withdrawal: alcohol, sedatives, hypnotics, anxiolytics
   Medications: anesthetics, anti-cholinergics, anti-convulsants, anti-histamines, anti-hypertensive, cardiovascular meds, anti-microbial meds, anti-parkinsonian meds, chemotherapeutic agents, steroids, GI meds, muscle relaxants, NSAIDS, OTC, anti-depressants, disulfiram,

4. General Medical condition
   Neurological-neoplasms, dementia, CVA’s, epilepsy, CNS infection, Huntington’s disease
   Endocrine-hyperthyroid, hypothyroid, hyperparathyroid, hypoparathyroid, hypoglycemia
   Metabolic-delirium: hypoxia, hypercarbia, hepatic diseases, renal diseases, fluid or electrolyte imbalances

5. Developmental disorder
   Autism, Rhett’s, Asperger’s: symptom overlap: poor communication skills (disorganized thinking/speech), poor reciprocal social skills (affect is flat, anhedonia?)

6. Personality disorders
   Paranoid-pattern of distrust and suspiciousness of others (delusion?)
   Schizoid-social detachment & restricted affect (negative symptoms?)
   Schizotypal-odd beliefs/unusual perceptual experiences (psychosis?), odd speech (disorganized thinking?),
II. Epidemiology
The incidence of schizophrenia in the U.S. is 0.3 - 0.6 per 1000 individuals. The lifetime prevalence is about 1%. Ranges reported in different studies vary between 0.5%-1.5%. Prevalence Male vs Female? About equal M = F 
US population of ~ 300 million; ~ 2.2 million people in the country have schizophrenia

Impact on Society: Where do 2.2 million patients with Schizophrenia live?

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<table>
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<tbody>
<tr>
<td>750,000 (~33%) live independently</td>
<td>135,000 (~6%) live in jail/prison</td>
</tr>
<tr>
<td>550,000 (~25%) live with family member</td>
<td>100,000 (~4.5%) live in hospitals</td>
</tr>
<tr>
<td>400,000 (~18%) live in group home or other supervised living situation</td>
<td>100,000 (~4.5%) are homeless-live in shelters/streets</td>
</tr>
<tr>
<td>165,000 (~7.5%) live in nursing homes</td>
<td>o This is 15-30% of all people in jail/prison</td>
</tr>
<tr>
<td></td>
<td>o This is over 33% of homeless population</td>
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III. Course of Illness
A. Prodromal phase: vague symptoms-social isolation/withdrawal, peculiar behavior, impaired personal hygiene, inappropriate affect, abnormal speech, odd beliefs; often the prodromal phase is not identified until after a first active phase (psychotic break) takes place;

B. Active phase (relapse): Patient meets the “A” criteria for schizophrenia

C. Residual phase (remission): after active phase(s) have taken place; no longer clearly meets the “A” criteria; much overlap with the Prodromal phase

1. Peak age of onset of the 1st time in Active phase:
   Male-earlier age 15/18-25 years; > 50% have 1st hospitalization by age 25
   Female-later, age 25-35/45; ~33% have 1st hospitalization by age 25

   Childhood onset-rare; ~1% of patients with schizophrenia have a childhood onset

2. Severity of illness, in general, M > F

3. Cognitive Impairment
   SMART: Speed, Memory (working, visual, verbal) Attention, Reasoning, Tact (social cognition)
   Patients are moderately to severely impaired compared with general population
   Appears early in course of illness, persists, and is stable
   Wisconsin Card Sort
   Anosognosia-lack of awareness of illness. Also called lack of insight into illness
   Some patients have no awareness of their illness.
   Some patients have partial awareness of their illness
   Some patients have awareness of their illness. Often, as illness progresses their awareness decreases
   Finally, for patients with illness awareness or partial awareness, there may be variability in their awareness as their illness goes into and out of the active phase.

4. Substance Abuse
Mechanisms of Human Disease
Thursday, February 14, 2019 – 8:30 am

Schizophrenia
Aparna Sharma, M.D.

- 30-50% alcohol abuse/dependence
  10-15% marijuana abuse/dependence
  5-10% cocaine abuse/dependence
- About 50% of patients with schizophrenia have, or have had, a problem with alcohol or illicit drugs

5. Outcome
- Course is favorable for ~20% of patients; small number of individuals recover completely
- Course is unfavorable for the great majority of patients
  - 75% can’t work, are unemployed; schizophrenia is among the top 10 causes of disability
  - 60-70% do not marry, most have limited social contacts
  - Only about 33% live independently

Quality of life associated with schizophrenia ranks among the worst of chronic medical illness

6. Suicide
- Completed suicide: different studies give range of 6-8%
  - General population complete suicide rate 1%
- Attempted suicide: different studies give different ranges, but ~20% make suicide attempts
  - ~50x’s higher than general population risk for suicide attempts
- Risk factors
  - Suicide risk remains present over the entire lifespan for both males & females
    - Especially high for younger males with comorbid substance abuse
  - Depressive symptoms, feelings of hopelessness, being unemployed;
  - Higher risk: period after psychotic episode or hospital discharge

7. Prognosis/Outcome predictors

<table>
<thead>
<tr>
<th>Predictor of Worse Outcome</th>
<th>Predictor of Better Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insidious onset (premorbid phase)</td>
<td>Acute/sudden onset (no premorbid phase)</td>
</tr>
<tr>
<td>Family history of schizophrenia</td>
<td>No family history</td>
</tr>
<tr>
<td>Earlier age of onset—teen years, childhood</td>
<td>Later age of onset—30’s, 40’s</td>
</tr>
<tr>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Many negative symptoms</td>
<td>Lack of negative symptoms</td>
</tr>
<tr>
<td>Initial response to medications: minimal to none</td>
<td>Initial very good response to medications**</td>
</tr>
<tr>
<td>Substance abuse</td>
<td><strong>Strongest correlation with outcome</strong></td>
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Please note, predictive factors are statistical and indicate increased likelihood. No factor or combination of factors makes one a lock to have a good or bad outcome.

IV. Etiology: What causes Schizophrenia?
A. Theories on the Cause of Schizophrenia
1. Neurochemical theory
   - Dopamine hypothesis
   - Other neurochemical-glutamate, GABA,
2. Infection/Immune theory
   - Viral cause-slow virus? May remain latent for long period of time before causing illness
   - Many viruses are seasonal, could account for seasonality of births in schizophrenia
   - Many studies consistently show more patients (~5-8%) with schizophrenia were born in the winter or spring months.
3. Nutritional theory
   - Other vitamin deficiency illnesses (beriberi, pellagra, pernicious anemia) may have psychiatric
symptoms, could schizophrenia also?
- abnormality in metabolism of lipids/fatty acids that are neuron components
- abnormality in protein metabolism

4. Endocrine theory
   Dysfunction of thyroid, adrenal gland, pituitary

5. Genetics theory
   Risk if no family history of schizophrenia 1 : 100 1%
   Risk if parent or sibling has schizophrenia 1 : 10 10%
   Risk if both parents have schizophrenia 4 : 10 40%
   Risk if identical twin has schizophrenia 1 : 2 50%

B. Theories on Process of schizophrenia development
   Neurodegenerative theory - brain deterioration over time from the psychotic episodes
   Developmental theory
   Something goes awry during the process of brain development in utero; neuronal wiring is wrong;
   Something goes awry with the pruning process of neurons during late teen years

   - Strong agreement that a single gene is not the cause
   - Combination of genes as cause is a more likely cause than single gene
   - More likely still, a person’s genetics make them more susceptible to schizophrenia; in combination
     with other factors, (virus? neurochemical? other) leads to development of the illness.

Genetic predisposition ➔ Early environmental insults-prenatal, perinatal
   ➔ Neurodevelopmental abnormalities ➔ Later developmental insults-substance abuse, psychosocial stressors
   ➔ Late adolescence neuronal pruning mistakes ➔ Further brain dysfunction ➔ Periods of psychosis
   ➔ Neurodegeneration

Bottom line: Cause of Schizophrenia is not known

V. Overview: Treating psychotic illnesses

**Mood disorder with psychosis**
   **Major depression with psychosis**-treat with anti-depressant & anti-psychotic; when
   patient no longer psychotic may eventually stop anti-psychotic; continue anti-depressant indefinitely
   **Bipolar disorder with psychosis**-treat with mood stabilizer & anti-psychotic, when
   patient no longer psychotic, may discontinue anti-psychotic; note 2nd
   generation/atypical anti-psychotics can be used as mood stabilizers

**Medical illness with psychosis (delirium)**-treat with anti-psychotic to help with psychosis and
   agitation/prevent unintentional patient injury; ultimately must find & treat underlying
   medical illness; discontinue anti-psychotic once delirium resolved

**Dementia with psychosis**-treat with low dose anti-psychotic, ideally treat only temporarily
**Substance induced psychosis**-treat acutely with anti-psychotic; most commonly psychosis
   resolves in 24-48 hours once substance is out of patient’s system; when no longer
   psychotic, discontinue anti-psychotic

**Schizoaffective disorder**-typically the patient is treated indefinitely with anti-psychotic
   medications

**Schizophrenia**-typically the patient is treated indefinitely with anti-psychotic medications

Ongoing Treatment Issues
- Question of balancing autonomy with beneficence; State’s *Parens Patriae* duty
  Question/debate/conundrum can perhaps be summed up this way:
  Does freedom include the right to be sick such that it interferes with or prevents one’s ability
  to exercise that freedom and make further choices?
  - ACLU, others oppose various state laws that allow forced treatment
    Argue that it’s a violation of civil liberties/autonomy and/or the right to privacy
- Need for Assisted Treatment?
  Various programs throughout the country address situations where patients with
  schizophrenia lack awareness about their illness, are without medications, and are unable to
  provide for themselves or are a danger to themselves/others.
  - Advanced directives, Assertive case managers, Representative Payee, Conditional
    Release, Out-patient commitment, Conservatorship, Substituted judgment, “Benevolent
    coercion”, Threat of Incarceration
  - Hospitalization/Involuntary hospitalization
    “New” (few years old now) Illinois Involuntary commitment option
  - Medication compliance
    Availability of long-term injectable form of medication—depot anti-psychotics
- Victimization
  - Vulnerable to criminals, cognitive deficits make them “easy marks” for theft, assault, and
    rape. Often the victims have difficulty giving a coherent narrative to police of what
    happened.
- Sex, Pregnancy, Parenthood
  - Side effects of anti-psychotic medications on sexuality, fertility; but ~50% of women
    with schizophrenia become mothers (almost equals general population)
  - Those who are cognitively impaired may not have ability to consent to sexual behavior
  - For pregnant patients, the ability to get/follow prenatal care is often a problem
  - Ability to be a parent can be greatly impaired; many opt for adoption; about 33% of
    mothers with schizophrenia lose custody of their children to family members, ex-
    partners, foster care, even adoption
- Assaultive/Violent Behavior
  Surgeon General 1999 report conclusions:
  1. To date nearly every modern study indicates that public fears are way out of
     proportion to the actual risk of violence from patients with mental illness
  2. Magnitude of violence associated with mental illness is comparable to that
     associated with age, educational attainment, and gender and is **limited to only some
disorders and symptoms constellations**
  3. Because serious mental illness is relatively rare and the excess risk modest, the
     contribution of mental illness to overall levels of violence in our society is miniscule
Risk factors for violence from schizophrenia patients
  - Concurrent alcohol and/or substance abuse
  - Noncompliance with medication
  - Past history of assaultive behavior

**Psychosocial problems**
Money, Food, Housing, Employment
Social Skills training
Medical & Dental Care
How do patients with schizophrenia present to a physician?
Frequently are found to be “difficult patients” for physicians to work with; will require more effort to treat
with lower likelihood of successful treatment implementation
- Poor historians—need collateral history
- Poor compliance with medications—need help from family, case worker; coordination
- Poor follow through—more effort to get labs, get to appointments, get medications, etc
- Lost to follow up—have to re-start something or start over
- Poor hygiene
- Lack of connection with patient

Schizophrenia pts also have higher rates of obesity, dyslipidemia, hypertension, diabetes, & cigarette
smoking compared to general population

<table>
<thead>
<tr>
<th></th>
<th>Schizophrenia pts</th>
<th>General population</th>
<th>Comparison: more common is schizophrenia patients</th>
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<tbody>
<tr>
<td>Obesity</td>
<td>42% BMI &gt; 27</td>
<td>27% BMI &gt; 27</td>
<td>1.5 to 2x’s more common</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>~27%</td>
<td>~17%</td>
<td>up to 5x’s more common</td>
</tr>
<tr>
<td>Hypertension</td>
<td>~27%</td>
<td>~17%</td>
<td>1.5 to 2x’s more common</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>~13%</td>
<td>~3%</td>
<td>2 to 4x’s more common</td>
</tr>
<tr>
<td>Cigarette Smoking</td>
<td>~75%</td>
<td>~25%</td>
<td>2 to 3x’s more common</td>
</tr>
</tbody>
</table>

Patients with schizophrenia untreated for medical problems—from NIMH CATIE study
- 30% untreated for diabetes mellitus; 62% untreated for hypertension;
- 88% untreated for dyslipidemia

Schizophrenia and General Medical Care
- General population ~1% die from suicide; schizophrenia pts ~10%
- General population ~50% die from Cardiovascular disease; schizophrenia pts ~75%

Life expectancy: General population 78 years Schizophrenia 48-53 years

The relative risk for suicide in schizophrenia is much higher compared to the general population.
However, because cardiovascular disease is far more common, the risk of schizophrenia patients dying
prematurely from cardiovascular disease is much higher than suicide. From that perspective,
cardiovascular disease is a bigger problem. But many cardiovascular disease risk factors are treatable.