Psychotic Disorders in Children & Adolescents

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DSM IV Psychotic Disorders

- Schizophrenia & Schizophrreniform Disorders
- Schizoaffective Disorder
- Brief Psychotic Disorder
- Delusional Disorder
- Shared Psychotic Disorder
- Psychotic Disorder NOS
- Substance – Induced Psychotic Disorder
- Psychotic Disorder Due to a Medical Condition
- Schizotypal Personality Disorder
DSM-5 Psychotic Disorders

- Delusional Disorder
- Brief Psychotic Disorder
- Schizophreniform Disorder
- Schizophrenia
- Schizoaffective Disorder
- Substance/Medication-Induced Psychotic Disorder
- Shared Psychotic Disorder
- Psychotic Disorder NOS
- Psychotic Disorder Due to another Medical Condition
- Schizotypal Personality Disorder
DSM-5 Psychotic Disorders

• Catatonia:
  – Without another mental disorder
  – Due to another medical condition
  – Unspecified

• Other specified schizophrenia and other psychotic disorder:
  Persistent auditory hallucinations
  Delusions with significant overlapping mood episodes
  Attenuated psychosis syndrome
  Delusional symptoms in partner of individual with delusional disorder

• Schizotypal Personality Disorder
Psychosis – Defined

- Severe disruption of thought and behavior resulting in the loss of reality testing.
- Based on overt changes in a person’s behavior and functioning, with evidence of disrupted thinking evident on mental status examination. (AACAP 2013)

Key Features:
1. Delusions
2. Hallucinations
3. Disorganized Thinking (Speech)
4. Grossly Disorganized or Abnormal Motor Behavior
5. Negative Symptoms
Psychosis – Key Features
DSM-5

Delusions – fixed beliefs that are not amenable to change in light of conflicting evidence. Can be bizarre or not.

- Persecutory
- Referential
- Grandiose/Erotomanic
- Nihilistic
- Somatic
Psychosis – Key Features

Hallucinations:

- Perceptual-like experiences that occur without an external stimulus.

- They are vivid and clear, with the full force and impact of normal perceptions, and not under voluntary control.

- Are distinct from an individual’s own thoughts.

- May occur in any sensory modality.

- Must occur in context of clear sensorium; (i.e., not sleep related – hypnagogic and hypnopompic phenomena).
Psychosis – Defined

Disorganized Thinking (Speech):

- Inferred from speech
- Tangentially
- Derailment
- Looseness of Associations
- Incoherence (word salad)
Psychosis – Defined

Negative Symptoms:

• Diminished emotional expression (facial expression, hand movements, prosody of speech)

• Avolition (decrease in motivated self-initiated purposeful activities)

• Alogia (decrease in speech output)

• Anhedonia (lack of or decrease in pleasure from positive stimuli).
Psychosis – Prognostic Value

Prognostic Value?

• **Adults** – equate psychosis with severe psychopathology

• **Children** – seen in serious psychopathology, non-psychotic psychopathology, psychosocial adversity & physical illness & normal development
Why do we care about psychosis?
Schizophrenia Outcomes

- First Episode Psychosis (FEP) – 96% reach clinical remission with treatment
- 80% relapse within 5 years of first episode

Recurrences associated with
- Persistent residual psychotic symptoms
- Progressive loss of grey matter
- Less responsiveness to antipsychotic meds
- More social and vocational disability

(Stephenson et al, JAMA 2000; Penn et al, Am J Psychiatry 2005)
Psychosis – Implications

Psychosis confers more severe course of illness

Chicago Follow Up Study

- 15 year prospective study of 274 young (age 23) psychiatric inpatients (Index Admission)

- 64 with Schizophrenia / 12 Schizophreniform disorder

- 81 with other psychosis (46% Bipolar Disorder, 35% Unipolar Depressed)

- 117 non-psychotic patients (62% Depressive D/O’s)

(Harrow, Schizophr Bull 2005)
Psychosis – Implications

Chicago Follow Up Study

Definition of Recovery: minimum of 1-year in any of 5 follow up periods:

- Absence of psychotic symptoms
- “Adequate” Psychosocial Functioning – at least ½ time
- Absence of very poor social activity level
- No psychiatric admissions
Periods of Recovery
(y-axis % with 1 year recovery in follow up period)
Psychosis as a Continuum

View that psychosis phenotype is expressed at various levels in a population.

Assumption is that experiencing symptoms of psychosis – such as hallucinations and delusions is not inevitably associated with the presence of a psychotic disorder.

(van Os, Psychological Medicine 2009)
Psychosis as a Continuum

Meta-analysis of 35 cohorts investigating prevalence and incidence of psychotic phenotypes in community samples
(van Os, Psychological Medicine 2009)

- Psychotic Symptoms: 4%
- Psychotic Experiences: 8%
- Psychotic Disorder: 3%
Psychosis as a Continuum

Meta-analysis of 35 cohorts investigating prevalence and incidence of psychotic phenotypes in community samples

Summary
Incidence 3%
Prevalence 5%

Majority of psychotic experiences in the population are transitory and disappear in 75% - 90% of individual

(van Os, Psychological Medicine 2009)
Psychosis in Children

• 1% in community samples and increases with age (ECA)
• In clinical samples – 4% children increases to 8% in adolescents
• Fennig et al -18/341 (5.3%) 1st-admission psychotic adults endorsed hallucinations <age 21 (most had not revealed hallucinations to parents/caregivers)

Regier DA, Arch Gen Psych (1984); Fennig S, J Nerv Ment Dis (1997)
Psychosis in Childhood and Adolescence

Hallucinations can be seen in healthy children

- Preschool children – hallucinations vs. sleep related phenomena and/or developmental phenomena (imaginary friends/fantasy figures)

- School age children – hallucination more ominous
Prognosis for Youth with Hallucinations

Conduct Disorder & Emotional Problems

Review of 4767 inpts & outpts with primarily CD/ODD
• 1.1% had hallucinations
• Followed for average of 17 years (age 30)

Compared with age, gender, diagnosis matched controls without hallucinations:
• hallucinations were not a significant predictor of outcome, nor increased risk for psychosis, depression or other psychiatric illnesses
• 50% continued to have hallucinations at follow up

Prognosis for Youth with Hallucinations

Then compared subjects with CD/ODD and hallucinations with adolescents with “psychosis of late onset” – over age 16:

• Found second group had more delusions, abnormalities in language production, inappropriate affect, bizarre behavior, hypoactivity and social withdrawal.

Garralda ME, Psychol Med (1985)
Prognosis for Youth with Hallucinations

Findings from a psychiatric emergency service:

- 2-month time period reviewed for youth with hallucinations without psychosis – 62 subjects
- 35 under age 13, mean age 11.4
- 6 subjects VH only, 32 subjects AH only, 24 subjects both VH & AH
- Diagnoses – Depression 34%, ADHD 22%, Disruptive Behavior Disorder 21%, Other 23%

Prognosis for Youth with Hallucinations

Findings from a psychiatric emergency service:

- AH’s “telling child to do bad things” associated with DBD 69% of the time
- AH’s “invoking suicide” associated with depression 82% of the time
- Dispositions: 44% admitted, 39% referred to outpatient services, 3% AMA, 14% “missing”

Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:
N = 2031 screened for psychosis:

- 5% - **definite** psychotic symptoms – at least 1 hallucination with score of 3 (definite) and/or at least 1 delusion with score of 4 (definite) – 18 < 13; 73 > age 13

- 5% - **probable** psychotic symptoms – at least 1 hallucination with score of 2 (suspected or likely) and/or at least 1 delusion with score of 3 (suspected or likely)

- 90% - with no psychotic symptoms

Ulloa RE, JAACAP (2000)
Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

For patients with definite psychotic symptoms:

- 24% Bipolar disorder
- 41% MDD
- 21% Depressive Disorders but not MDD
- 14% Schizophrenia Spectrum Disorders – 4 patients with schizophrenia; 9 with SAD

Ulloa RE, JAACAP (2000)
Ulloa 2000—Distribution of Psychotic Symptoms in “Definite” group

%  

- Auditory: 73.6%  
- Visual: 38.5%  
- Olfactory: 26.2%  
- Delusions: 22.0%  
- Tactile: 9.9%  
- Thought Disorder: 3.3%
Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic: Interesting findings:

- Distribution of psychotic symptoms were similar for definite vs. probable psychosis

- No difference between children & adolescents in frequency of hallucinations & delusions

- Adolescents had higher frequency of AH’s coming from “outside the head”

- Thought disorder present only in adolescents

Ulloa RE, JAACAP (2000)
Psychosis in Childhood and Adolescence

Psychosis in a Pediatric Mood/Anxiety Disorder Clinic:

Patients with definite vs. non-psychotic youths more likely to have:
• Major Depression
• Bipolar Affective Disorder
• Anxiety Disorder – generalized anxiety or Panic disorder

Also – definite patients more likely to have suicidal ideation – mediated by presence of mood disorder

Ulloa RE, JAACAP (2000)
Psychosis in Trauma Spectrum Disorders

Trauma-related hallucinations reported in:

- 9% abused children seen in pediatric clinics
- 20% child sexual abuse victims - inpatient samples
- 75% abused children meeting dissociative disorder criteria

Kaufman J, JAACAP (1997)
Psychosis in Trauma Spectrum Disorders

Hallucinations characterized by:

• Hearing perpetrator’s voice/seeing face
• Often nocturnal
• Associated with impulsive, aggressive and self-injurious behavior, nightmares and trance-like states
• Less likely to be associated with negative symptoms (withdrawn behavior, blunted affect), formal thought disorder or early abnormal development
• Typically resolve with intervention/safety

Kaufman J, JAACAP (1997)
Psychosis in Major Depressive Disorder

- 50% of prepubertal children with major depression may have hallucinations of any type

- Up to 36% may have complex auditory hallucinations

- Delusions are more rare

Chambers WJ, Arch Gen Psychiatry (1982)
Psychosis in Pediatric BPAD

COBY Study (Course & Outcome of Bipolar Youth Study)

N = 413 Youth ages 7 - 17
Subjects interviewed every 39 weeks for 192 weeks

Psychosis:
• 16% of participants at Index Episode
• 17% in Follow Up period

Birmaher et al. Am J Psych 2009
Psychosis in Bipolar Affective Disorder

- Most common psychotic symptoms are mood-congruent delusions – mainly grandiose in nature

- Psychotic features appear in context of affective symptoms

- Family history of affective psychosis aggregate in probands with bipolar disorder

Psychosis in Childhood and Adolescence

Substance Use Disorders

- Schizophrenia & SUD – highly comorbid
- Amphetamines
- PCP
- MDMA
- Cannabis
Psychosis in Childhood and Adolescence

Organic Syndromes

- Seizure disorders
- Delirium
- CNS lesions
- Metabolic/Endocrine
- Neurodegenerative disorders
- Developmental disorders
- Toxic encephalopathy
- Infectious agents
- Autoimmune disorders
Childhood Onset Schizophrenia

Criteria:
• Delusions
• Hallucinations
• Disorganized Thinking (Speech)
• Grossly disorganized behavior/catatonia
• Negative symptoms

• 6-month minimum duration – includes prodrome, active and residual phases
Prevalence
• Childhood estimated 1/10,000 – 30,000
• Adolescence – increases with age
• Likely to be diagnosed clinically but not supported when given a structured diagnostic interview

Sex Ratio
• Approximately 4:1
• Ratio trends to even out as age increases
Childhood & Adolescent Onset Schizophrenia
Clinical Phenomenology

Hallucinations:
- AH’s - Most common positive symptom – 80%
- VH’s – 30% to 50% of patients and usually accompanied by AH’s
- Tactile Hallucinations – rare

Delusions:
- less common than adult onset – 45%
- Persecutory & somatic more common
- Though control & religious themes rare (3%)
- Delusions more complex in older subjects
Cognitive Impairment

• Significant impact on mean IQ
• Most patients function in low average to average range (82 -94)
• Decline from COS to adolescence due to failure to acquire new information/skills, not a dementing process (Bedwell 1999)
Childhood & Adolescent Onset Schizophrenia
Course of illness

Prodrome
• Weeks to months – functional impairment
• Wide range of non-specific symptoms including unusual behaviors & preoccupation, social withdrawal & isolation, academic problems, dysphoria, vegetative symptoms

Acute Phase – 1 to 6 months, positive symptoms

Recovery Phase – months, negative symptoms, common, depression
Childhood & Adolescent Onset Schizophrenia Risk Factors

Genetic risk
  – 50% heritability

• Non-genetic biologic risk
  – Urbanicity
  – Prenatal infections (influenza)
  – Prenatal toxic exposure (lead)
  – Obstetrical complications
  – Traumatic (head trauma, perinatal period to adolescence)
  – Autoimmune (Rh incompatibility, increasing risk with multiple births)
  – Nutrition (starvation, omega-3 deficiency)
  – Heavy cannabis, other psychotogenic drug exposure

• Non-heritable genetic risk
  – Age of father >50; probably natural mutations in spermatogenesis
After Cornblatt, et al., 2005

Social and Environmental Triggers

Disability

Biological Vulnerability: CASIS

Early Insults

e.g. Disease Genes, Possibly Viral Infections, Environmental Toxins

Brain Abnormalities

Structural Biochemical Functional

Cognitive Deficits Affective Sx: Depression Social Isolation School Failure

Increasing Positive symptoms
<table>
<thead>
<tr>
<th></th>
<th>Hallucinations</th>
<th>Delusions</th>
<th>Disorganization</th>
<th>Abnormal Psychomotor Behavior</th>
<th>Restricted Emotional Expression</th>
<th>Avolition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not Present</td>
<td>Not Present</td>
<td>Not Present</td>
<td>Not Present</td>
<td>Not Present</td>
<td>Not Present</td>
</tr>
<tr>
<td>1</td>
<td>Equivocal (severity or duration not sufficient to be considered psychosis)</td>
<td>Equivocal (severity or duration not sufficient to be considered psychosis)</td>
<td>Equivocal (severity or duration not sufficient to be considered disorganization)</td>
<td>Equivocal (severity or duration not sufficient to be considered abnormal psychomotor behavior)</td>
<td>Equivocal decrease in facial expressivity, prosody, or gestures</td>
<td>Equivocal decrease in self-initiated behavior</td>
</tr>
<tr>
<td>2</td>
<td>Present, but mild (little pressure to act upon voices, not very bothered by voices)</td>
<td>Present, but mild (delusions are not bizarre, or little pressure to act upon delusional beliefs, not very bothered by beliefs)</td>
<td>Present, but mild (some difficulty following speech and/or occasional bizarre behavior)</td>
<td>Present, but mild (occasional abnormal motor behavior)</td>
<td>Present, but mild decrease in facial expressivity, prosody, or gestures</td>
<td>Present, but mild in self-initiated behavior</td>
</tr>
<tr>
<td>3</td>
<td>Present and moderate (some pressure to respond to voices, or is somewhat bothered by voices)</td>
<td>Present and moderate (some pressure to act upon beliefs, or is somewhat bothered by beliefs)</td>
<td>Present and moderate (speech often difficult to follow and/or frequent bizarre behavior)</td>
<td>Present and moderate (frequent abnormal motor behavior)</td>
<td>Present and moderate decrease in facial expressivity, prosody, or gestures</td>
<td>Present and moderate in self-initiated behavior</td>
</tr>
<tr>
<td>4</td>
<td>Present and severe (severe pressure to respond to voices, or is very bothered by voices)</td>
<td>Present and severe (severe pressure to act upon beliefs, or is very bothered by beliefs)</td>
<td>Present and severe (speech almost impossible to follow and/or behavior almost always bizarre)</td>
<td>Present and severe (abnormal motor behavior almost constant)</td>
<td>Present and severe decrease in facial expressivity, prosody, or gestures</td>
<td>Present and severe in self-initiated behavior</td>
</tr>
</tbody>
</table>

Psychotic Disorders Dimensional Scale DSM-5