Pediatric and Adolescent Mental Health: Warning Signs and Things to Watch Out For

Rebecca Marshall, MD, MPH
Assistant Professor, Child and Adolescent Psychiatry
Oregon Health & Science University

Conflict of Interest Disclosure

I have no financial relationships to disclose
Oregon Psychiatric Access Line About Kids (OPAL-K)

- Same day phone psychiatric consultation to primary care providers
- Evidence-based and informed guidelines
- Focused on understanding and supporting youth from a biopsychosocial perspective
- Goal is assisting PCPs in the identification and treatment of psychiatric and developmental challenges, thereby improving care for youth and their families.

How Can I Register for OPAL-K?

- Registration eliminates delays when you call for advice and gives you immediate access to consulting psychiatrists.
- Email OPALK@ohsu.edu
- Call 855-966-7255 (toll-free) or 503 346-1000
- Register online: www.ohsu.edu/OPALK

Outline

I. Biopsychosocial model in child psychiatry
II. Four cases:
   I. A 9 year old boy with aggression
   II. A 14 year old girl with SI
   III. A 17 year old boy with change in behavior
   IV. A 6 year old girl with school refusal
III. Discussion / Questions
Prevalence of Psychiatric Disorders in Youth

Biopsychosocial Framework

- Assumption that brain development and the mind's functioning are influenced by:
  - Biology: Genetics (predisposition), Insults (illness, injury, toxin / medication)
  - Psychology: Attachment / relationships, personality combined with internal and external challenges, intellectual ability, flexibility and emotion regulation
  - Social: interactive experience with individuals, institutions, society and culture.

Biopsychosocial Evaluation

- History
- Information sources
- Use of scales and detailed developmental / psychiatric history form
- Exam
- Further evaluation
  - Medical
  - Neurologic
  - Learning
7 Year Old Boy with Aggression

- Brought to PCP by mother with complaint that he is aggressive with siblings and will not abide by limits mom tries to set. Will have “rages” in which he screams, hits and kicks, throws things for hours at a time. She says it is “impossible” to get him to go to sleep and there are times he will go to sleep at 2am and wake up at 6. Mom wonders if he has bipolar disorder.

History

- Mom works in service industry, kids are in school / childcare 9 hours a day. Patient is “obsessed” with video games and plays for upwards of 4 hours daily, including until he is supposed to go to bed at 10pm.
- Patient has nightmares almost nightly. Mom reports that he tends to “flip out” if there are loud noises or if she yells at him or the siblings.

Additional history

- Family structure: Lives with mom, three younger brothers. Dad is in prison for domestic violence against mother. Patient observed several episodes in which dad abused mom resulting in police being called.
- Family history: Paternal grandfather with bipolar disorder, several maternal relatives with depression
Developmental history

- Normal pregnancy, no in-utero exposures.
- Uncomplicated full-term vaginal birth.
- Mom reports being "severely depressed" postpartum. Given violence in the home the patient was placed in foster care for several months at 6 months of age.

Interview

- On exam, patient is a quiet thin boy with dark circles under his eyes who makes infrequent eye contact, is constantly moving, and seems easily distracted.
- You ask him about whether he has flashbacks or nightmares and he looks uncomfortable and doesn’t answer.
- Mom says “he never wants to talk about his dad.”

Differential

- Reactive attachment disorder
- Post traumatic stress disorder
- Oppositional defiant disorder
- Depression
- ADHD
- Anxiety
- Bipolar disorder
TOXIC STRESS AND TRAUMA

Levels of Stress

- **Positive**
  - Brief increases in heart rate, mild elevations in stress hormone levels.

- **Tolerable**
  - Severe, temporary stress responses; buffered by supportive relationships.

- **Toxic**
  - Prolonged activation of stress response systems in the absence of protective relationships.


Elements Necessary for Trauma

- **An Experience /Event:**
  - Actual/threatened death or serious injury threat to physical integrity of self/others (sexual abuse, physical abuse, verbal abuse / threats)

- **Fear**
Biological and Psychological Responses to Trauma

- **Hyperarousal** (irritability, fear, startling, difficulty falling asleep)
- **Re-experiencing** (intrusive thoughts or images, flashbacks)
- **Avoidance of reminders** (talking, thinking, activities)
- **Dissociation** (confusion, numbness, lost time and personal details)

Developmental Considerations: Preschool

- Clingy
- Disordered attachment
- Separation anxiety
- Hyperactive/impulsivity
- Tantrums/aggression
- Stubborn/oppositional
- Regression
- Somatic complaints
- Re-experiencing may manifest as repetitive play

Developmental Considerations: School Age

- Anger/irritability ("behavioral" expression of difficulty)
- School refusal
- Poor attention
- Somatic complaints
- Separation anxiety
- Avoidance symptoms more closely related to event/trauma
- Trauma related play (becomes more complex and elaborate)
- Better able to understand concepts of future, past more realistically
- Nightmares (may change from event specific to generalized over time)
Developmental Considerations: Adolescent

- Shame/blame
- Oppositional/aggressive behaviors to regain a sense of control
- School avoidance/refusal/truancy
- Drugs/alcohol
- Self-injurious urges and behavior
- Revenge fantasies (especially with developmental issues/social delays/victims of bullying)
- Detachment
- Aggression
- Sense of foreshortened future may take form of belief that they will not reach adulthood or don’t need to plan for future.

Epidemiology of Child Trauma Exposure

Lifetime exposure: (at least one traumatic event)

- Girls: 15-43%
- Boys: 14-43%

(Copeland W et al. Arch G Psychiatry 2007)

The ACE Study
Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study

Vincent J. Felitti, MD, FACP, Robert F. Anda, MD, MS, Dale Nordenberg, MD, David F. Williamson, MS, PhD, Alison M. Spitz, MS, MPH, Valerie Edwards, BA, Mary P. Koss, PhD, James S. Marks, MD, MPH. Am J Prev Med 1998;14(4)

ACE Study

- Assessed associations between childhood maltreatment and later-life health and well-being.
- Collaboration between the Centers for Disease Control and Prevention and Kaiser Permanente’s Health Appraisal Clinic in San Diego.
- More than 17,000 Health Maintenance Organization (HMO) members asked to participate
- Over 50 subsequent published studies.

Impact of Trauma and Health Risk Behaviors

Health Risk Behaviors
- Smoking
- Severe obesity
- Physical inactivity
- Suicide attempts
- Alcoholism
- Drug abuse
- 50+ sex partners
- Repetition of original trauma
- Self Injury
- Eating disorders
- Perpetrate interpersonal violence
Long-Term Consequences of Unaddressed Trauma

**Serious Social Problems**
- Homelessness
- Prostitution
- Delinquency, violence, criminal behavior
- Inability to sustain employment

**Re-victimization/perpetration:** rape, domestic violence

**Compromised ability to parent**

**Intergenerational transmission of abuse**

**Long-term use of health, correctional, and social services**

---

**Disease and Disability**

- Ischemic heart disease
- Cancer
- Chronic lung disease
- Chronic emphysema
- Asthma

- Liver disease
- Skeletal fractures
- Poor self rated health
- Sexually transmitted disease
- HIV/AIDS

---

**15 Year Old Girl with Suicidal Ideation**

A 15 year old girl with no psychiatric history is brought to PCP by parents, who are concerned because they found a Facebook post in which she said “sometimes I wish I’d never been born.” On questioning she admitted to having frequent suicidal thoughts. She said that she had done online research about which medications could be used to overdose.
History

Parents reported noticing for several months that she had been “mopey,” spending more time alone in her room on social media. They assumed it was just a “teenage girl” thing. They felt that things had been going fairly well for her at school and socially though she had occasionally mentioned feeling like she was being “picked on” by some other kids at school.

Interview with patient

- Endorsed feeling “down” for three months, since boyfriend of 6 months had broken up with her.
- Not enjoying normal activities. Difficulty with sleep onset due to worrying, tired all day, napping in afternoon. Used to be in cross country; now no energy. Increased appetite (+ 5 lbs since last appointment). Decreased concentration at school, drop in grades. SI for several weeks but denies prior suicide attempts, and denies intention to act on thoughts.
- No prior episodes of mood disturbance, no psychotic symptoms.
- MSE notable for flat, restricted affect, slight psychomotor slowing, organized and linear thought process, SI without a plan, no psychotic symptoms.

History

- Family history significant for both depression and anxiety disorders, as well as one completed suicide of a maternal uncle whom the patient had known well.
- Developmental history unremarkable.
- No history of physical, sexual or emotional abuse or witnessed violence in the home, however had been bullied at school x 2 years
- Guns in the home but locked in bedroom, family frequently goes hunting together.
Differential
- MDD
- Dysthymia
- Generalized anxiety disorder
- Hypothyroidism

Major Depressive Disorder
- MDD is a significant risk factor for completed suicide
- MDD is associated with significant morbidity

Risks for Untreated MDD in Youth
- Greater risk for MDD as young adults
- Social/economic costs are high and carry into adulthood
  - Hospitalizations
  - Educational Achievement
  - Earning Potential
- Increased risk for substance abuse
- 4-5 fold increased lifetime risk of suicide attempts
Epidemiology

- Prevalence
  - 2% in children
  - 4-8% in adolescents
- Male to Female Ratio
  - Children: 1:1
  - Adolescents: 1:2
- Cumulative prevalence for girls by age 18 is 20%

Epidemiology

- Approximately 5-10% of children and adolescents have subsyndromal symptoms of MDD
  - Considerable psychosocial impairment
  - High family loading for depression
  - Increased risk for suicide
  - Increased risk for developing full symptoms of depression

Affect and Mood

- Parents
  - “My kid can’t be pleased”
  - Intentionally obstinate: “He is always trying to irritate me”
  - “She complains that there is nothing to do, but she won’t call her friends”
  - “I’m walking on eggshells!”
Affect and Mood: Youth

- “On edge all the time”
- “Short fuse”
- “There is nothing to do”
- Cry easily, often alone.

Common Signs

- Initial insomnia
- Poor motivation
- After school naps
- Morbid preoccupation
- Negative ruminations

Common Signs

- Declining grades
- Poor relations in family
- Change in peer group
- Giving up activities, ie sports, choir, band
Treatment of Adolescents with Depression Study (TADS)

- Multisite RCT in US
- N=439; 12-17 year olds
- Acute treatment for 12 weeks
- Effectiveness study; high degree of comorbidity
  - Suicidal ideation was present in at least 29% at baseline
  - Those deemed at high risk for suicide in the past 6 months or those unable to contract for safety were excluded

TADS Study, JAMA, August 2004;292 (7)

TADS

- Funded by NIMH without industry support
- 4 groups
  - CBT vs Fluoxetine vs Combination vs Placebo
  - Fluoxetine flexibly dosed, 10-40 mg
- Primary outcome measure: CDRS-R
- Responder analysis: CGI-I

TADS Study, JAMA, August 2004;292 (7)

TADS Study: Results

- Combination: 71%
- Fluoxetine: 60.6%
- CBT: 43.2%
- Placebo: 34.8%

TADS Study, JAMA, August 2004;292 (7)
Suicidality in TADS

- Designed to prospectively define and assess “suicide-related events and harm-related suicide events”
- 24 (5.5%) “suicide-related events”
  - 15 were on fluoxetine
  - 9 on no medication
- 7 suicide attempts (1.5%): 6 on fluoxetine

Suicidality in TADS

- Clinically significant suicidal thinking improved significantly in all four groups, but combination showed the greatest reduction

FDA Warnings and Recommendations

- There is a “black box” warning about the increased risk of suicidality or suicidal ideation in children and adolescents treated with antidepressants
  - This warning applies for any indication, not just depression
  - Applies to all antidepressants, not just SSRIs
  - Applied in 2004
The Big Picture from Review Leading to Warning

- 95 cases of definitive suicidal behavior in 4,300 youth studied.
- NO completed suicides in more than 2,800 depressed children and adolescents studied.

What about Bipolar Affective Disorder?

Clinical Course: Bipolar Outcome

- Bipolar “switch”
- 20-30% at 5 years if prepubertal onset
- Kids at risk
- Family history
- Psychotic symptoms
Clinical Course of MDD
- Mean Episode Length: 28-36 wks
- Recovery: 40% at 6 mos, 80% at 12 mos, 90% at 2 yrs
- Recurrence: 40% at 2 yrs, 54% at 3 yrs, 70% at 6 yrs
- Persistence into young adulthood: 60-70%

Assessment
- Important to interview youth with parent and youth alone
- Once suspicious for MDD, need to assess risk factors for completed suicide:
  - Agitation, ruminative anxiety
  - Psychotic thinking
  - Suicidal ideation/plans/intent and/or history of suicide attempts

Assessment
- Risk factors for completed suicide
  - Males >> Females (5:1 ages 15-24)
  - Age: ≥ 16 y/o
  - Substance use
  - Friend/peer/relative who has completed suicide
Treatment

- Immediate treatment depends on acuity and dangerousness

- Need to decide if safe to manage as outpatient vs. more intensive services

Treatment: Outpatient

- Must talk to family about decreasing access to means of killing self
  - Remove guns in home
  - Secure all medicines including OTCs

- Decide on school attendance for immediate term

- Increased supervision by parents
  - "I am not feeling safe"
  - "Are you safe?"

FDA Parent Guide

- To be handed out to parents at pharmacies when antidepressants filled

- Reviewing with patients and parents at medical appointment is encouraged

- States "antidepressants may increase suicidal thoughts or actions in some children and teens"
Antidepressants and Suicide Attempts

- Retrospective cohort study including 36,842 children aged 6-18 years enrolled in Tennessee Medicaid between 1995-2006
- No difference for risk of suicide attempts among individual medications (sertraline, paroxetine, citalopram, escitalopram, venlafaxine) compared with fluoxetine

Cooper WO, et al, Pediatrics 2014; 133:204-210

Suicide in Oregon ages 10-17

- Suicide among adolescents accounted for appx 2 percent of suicides. The rate of suicide among adolescents was 3.2 per 100,000.
- Firearms most common mechanism of death among boys (45%), followed by hanging / suffocation (39%) and poisoning (8%).
- Among girls, hanging / suffocation most common mechanism (57%), followed by firearms (29%) and poisoning (14%).
Suicide in Oregon

- Appx 70% youth suicide victims with diagnosed mental disorder, alcohol and/or substance use problems, or depressed mood at time of death
- 27% of girls and 12% of boys had previous attempt
- 1/3 of suicide victims in mental health tx at time of death.
- 9-14% male victims had alcohol and/or other substance use problems
- Crisis within past 2 weeks for nearly 50% of suicide victims.
  - boyfriend / girlfriend, family stressors and school problems
- Nearly one third of adolescents who died by suicide had disclosed their intent to kill themselves before they died.


Behavior Change in a 17 year old boy

- 17 year old boy with no prior psychiatric history brought to PCP by parents due to concern for change in behaviors.
  - He used to be a good student but his grades declined over the past year.
  - Has gone from being fairly clean-cut to not taking care of his appearance, often not showering for days
  - Spends most of his time at home in front of the computer, “obsessively” researching

History

- On interview boy says he has felt a little down lately.
- He endorses feeling like he has trouble concentrating, that he gets “distracted” a lot
- Reports sometimes hearing some vague mumbling voices (more than one) in his head
- Denies ideas of reference but gives you an odd smile when you ask about whether he has any “special powers.”
**History**
- Family history significant for paternal grandfather with schizophrenia and paternal uncle with drug use and completed suicide at age 22.
- Developmentally: no in utero exposures, normal birth, no developmental delays.
- Tended to be shy as a child, never had a lot of friends.
- No history of abuse though parents note he was bullied all during 9th and 10th grades.

**Differential**
- Depression with psychotic features
- Early schizophrenia (schizophreniform)
- Bipolar disorder
- Drug use
- Trauma
- Anxiety

**Psychosis in Children and Adolescents**
- Psychosis does not mean schizophrenia
- Psychosis fairly common
- Schizophrenia epidemiology:
  - 11:10,000 children
  - Rare before age 13, but the incidence steadily increases during adolescence
  - Peak onset is aged 15 – 30 years
  - Youngest childhood diagnosis is 3 years
  - 2:1 Male to Female
Is This Really Psychosis?

- Early childhood
  - Vivid imaginations and fears
  - Transient, prognostically benign hallucinations (preschool)
  - Hypnogogic and hypnopompic hallucinations
- Loose associations, illogical thinking (decreases age 6-7)
- Disorganization/dysregulation can be a stress response
- Intense / obsessive thoughts versus hearing voices
- Parental distress does not correlate to clinical severity

Shatkin, Jess P. Pediatric Psychosis. AACAP.

https://www.google.com/?gws_rd=ssl#safe=off&q=childhood+schizophrenia+powerpoint+presentation

Psychosis Prevalence

- Median prevalence of psychotic symptoms
  - 17% (ages 9-12)
  - 7.5% (ages 13-18)
- After one year, half of teens with hallucinations had no symptoms; 67% had reduced symptoms
  - However – youth with + psychotic symptoms at increased risk for psychiatric disorders
- Children reporting psychotic symptoms were more likely to have been abused (OR 6), witnessed DV (OR 10), been bullied (OR 10) or had SI or suicidal behavior (OR 10).


Odds of Psychotic Symptoms among Youth with Lifetime Axis I Disorders

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Early Adolescence (9-12 years)</th>
<th>Mid-Adolescence (13-18 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% with psychotic symptoms</td>
<td>Adjusted* OR (95% CI)</td>
</tr>
<tr>
<td>Any Lifetime Axis I disorder</td>
<td>40</td>
<td>3.57 (1.87–6.84)</td>
</tr>
<tr>
<td>Affective disorder</td>
<td>51</td>
<td>3.08 (2.33–4.10)</td>
</tr>
<tr>
<td>Behavior disorder</td>
<td>50</td>
<td>3.23 (1.24–8.43)</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>23</td>
<td>1.01 (0.48–2.12)</td>
</tr>
</tbody>
</table>

*Adjusted for gender
Prodromal Symptoms

- Premorbid impairments
  - 72% social / behavioral impairments
  - 55% academic impairments
  - 51% language impairments
  - 44% motor impairment
  - 20% with pervasive developmental disorder
- Average number abnormalities 4 (15 domains)
- 87% premorbid impairment in at least one domain


6 Year Old Girl with School Refusal

- Parents present with 6 year-old girl who has started having “fits” every time they try to take her to school. She will scream and cry in the parking lot; if forced to go into school she will try to run out of building or if kept in classroom will refuse to participate.
- At home she is clingy, seems to have regressed. She doesn’t want to go to bed, parents have to stay in room or she won’t be able to fall asleep. She often wakes in the night, comes into parents’ room and sleeps on floor. She complains of frequent tummy aches

Additional History

Patient quiet, talks in very soft voice, sits on mom’s lap during entire appointment. Says she feels “scared” at school but does not elaborate.

Family history significant for anxiety disorders.

Birth and developmental history unremarkable.

No history of abuse, witnessed violence, bullying.
Differential

- Separation Anxiety
- Generalized Anxiety Disorder
- Social Phobia
- Major Depressive Disorder
- Trauma

Anxiety Disorders in Children

- Most common class of psychiatric disorders in children and adolescents
- Comorbidity is common
- At higher risk of anxiety disorders and major depressive disorder as adults
- Separation anxiety disorder more prevalent in childhood
- Generalized anxiety disorder, social phobia, and panic disorder more prevalent during adolescence

Prevalence of Mental Disorders in Children and Adolescents, Aged 9-17 Years

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct disorder</td>
<td>13.0%</td>
</tr>
<tr>
<td>ADHD</td>
<td>10.3%</td>
</tr>
<tr>
<td>Depression*</td>
<td>6.0%</td>
</tr>
<tr>
<td>ODD</td>
<td>4.0%</td>
</tr>
<tr>
<td>DBD</td>
<td>2.0%</td>
</tr>
<tr>
<td>Anxiety disorder†</td>
<td>13.0%</td>
</tr>
</tbody>
</table>

ADHD = attention deficit/hyperactivity disorder; ODD = oppositional defiant disorder; DBD = disruptive behavior disorders
*Includes major depression and dysthymia
†Includes simple phobia, social phobia, separation anxiety disorder, avoidant disorder, and obsessive-compulsive disorder

Causative Factors

- Biological Factors
  - Genetic Predisposition
  - Respiratory Dysregulation

- Environmental Factors
  - Modeling and Competition in Family
  - Critical and Over-Controlling

Causative Factors

- Psychological Factors
  - Overachiever
  - Cognitive Biases
    - Preferential attention to threatening cues

Maintenance of Anxiety

- Conditioning Occurs
  - Child learns that a particular situation is “dangerous” when he/she experiences anxiety in the situation
  - Avoidance of any reminders helps maintain this belief/connection
Assessment

• Normal fears/worries vs. Clinical levels of anxiety
• Causes clinically significant distress or impairment in social, academic, or other important areas of functioning
• About 70% of young children experience transient nighttime fears considered to be developmentally normal (Muris, 2001)

Assessment

• Interview of parents
• Interview of child
• Collateral information from teachers
• Consider co-morbid conditions
• Consider medical conditions
  • Substance use disorder in teenagers

Acknowledgement

• With thanks to Kyle Johnson, MD and Ajit Jetmalani, MD of the OHSU Child and Adolescent Psychiatry Division for contributing slides on trauma, depression and anxiety disorders.
Oregon Psychiatric Access Line for Kids (OPAL-K)

To register:

- Email OPALK@ohsu.edu
- Call 855-966-7255 (toll-free) or 503 346-1000
- Register online: www.ohsu.edu/OPALK