Emotion Dysregulation and Outbursts in Children

Kyle P. Johnson, MD
Professor, Division of Child & Adolescent Psychiatry

Objectives

- Describe the development of emotion regulation in typically developing children
- Identify the many psychiatric disorders in which explosive outbursts may play an important role
- Review the evidence base for psychosocial interventions for the treatment of emotion dysregulation
- Review psychopharmacology of treating explosive behaviors

Disclosures

- None

Parents Often Bring Children to Psychiatric E.R.s to Subdue Them, Study Finds

Many parents bring children to emergency rooms to manage aggressive behaviors. But the visits offer little long-term benefit, doctors said.

Give this article 317

Patients who required medications to subdue them were 22 percent more likely to revisit an emergency room than patients who did not, the study found. Tim Gruber for The New York Times

NYTimes
December 27, 2022

JAMA Pediatrics | Original Investigation

Mental Health Revisits at US Pediatric Emergency Departments

Anna M. Cushing, MD; Danica B. Liberman, MD, MPH; Phung K. Pham, MS, MA; Kenneth A. Michelson, MD, MPH; Ara Festekjian, MD, MS; Todd P. Chang, MD, MAcM; Pradip P. Chaudhari, MD

IMPORTANCE Pediatric emergency department (ED) visits for mental health crises are increasing. Patients who frequently use the ED are of particular concern, as pediatric mental health ED visits are commonly repeat visits. Better understanding of trends and factors associated with mental health ED revisits is needed for optimal resource allocation and targeting of prevention efforts.

OBJECTIVE To describe trends in pediatric mental health ED visits and revisits and to determine factors associated with revisits.

DESIGN, SETTING, AND PARTICIPANTS In this cohort study, data were obtained from 38 US children's hospital EDs in the Pediatric Health Information System between October 1, 2015, and February 29, 2020. The cohort included patients aged 3 to 17 years with a mental health ED visit.

EXPOSURES Characteristics of patients, encounters, hospitals, and communities.

MAIN OUTCOMES AND MEASURES The primary outcome was a mental health ED revisit within 6 months of the index visit. Trends were assessed using cosinor analysis and factors associated with time to revisit using mixed-effects Cox proportional hazards regression.

RESULTS There were 308 264 mental health ED visits from 217 865 unique patients, and 13.2% of patients had a mental health revisit within 6 months. Mental health visits increased by 8.0% annually (95% CI, 4.5%-11.4%), whereas all other ED visits increased by 1.5% annually (95% CI, 0.1%-2.9%). Factors associated with mental health ED revisits included psychiatric comorbidities, chemical restraint use, public insurance, higher area measures of child opportunity, and presence of an inpatient psychiatric unit at the presenting hospital. Patients with psychotic disorders (hazard ratio [HR], 1.42; 95% CI, 1.29-1.57), disruptive or impulse control disorders (HR, 1.36; 95% CI, 1.30-1.42), and neurodevelopmental disorders (HR, 1.22; 95% CI, 1.14-1.30) were more likely to revisit. Patients with substance use disorders (HR, 0.60; 95% CI, 0.55-0.66) were less likely to revisit.

CONCLUSIONS AND RELEVANCE Markers of disease severity and health care access were associated with mental health revisits. Directing hospital and community interventions toward identified high-risk patients is needed to help mitigate recurrent mental health ED use and improve mental health care delivery.

JAMA Pediatr. doi:10.1001/jamapediatrics.2022.4885
Published online December 27, 2022.

Supplemental content

Author Affiliations: Division of Emergency and Transport Medicine, Children's Hospital Los Angeles, Los Angeles, California (Cushing, Liberman, Pham, Festekjian, Chang, Chaudhari); Department of Pediatrics, Keck School of Medicine of the University of Southern California, Los Angeles (Liberman, Festekjian, Chang, Chaudhari); Department of Population and Public Health Sciences, Keck School of Medicine of the University of Southern California, Los Angeles (Liberman); Division of Emergency Medicine, Boston Children's Hospital, Boston, Massachusetts (Michelson).

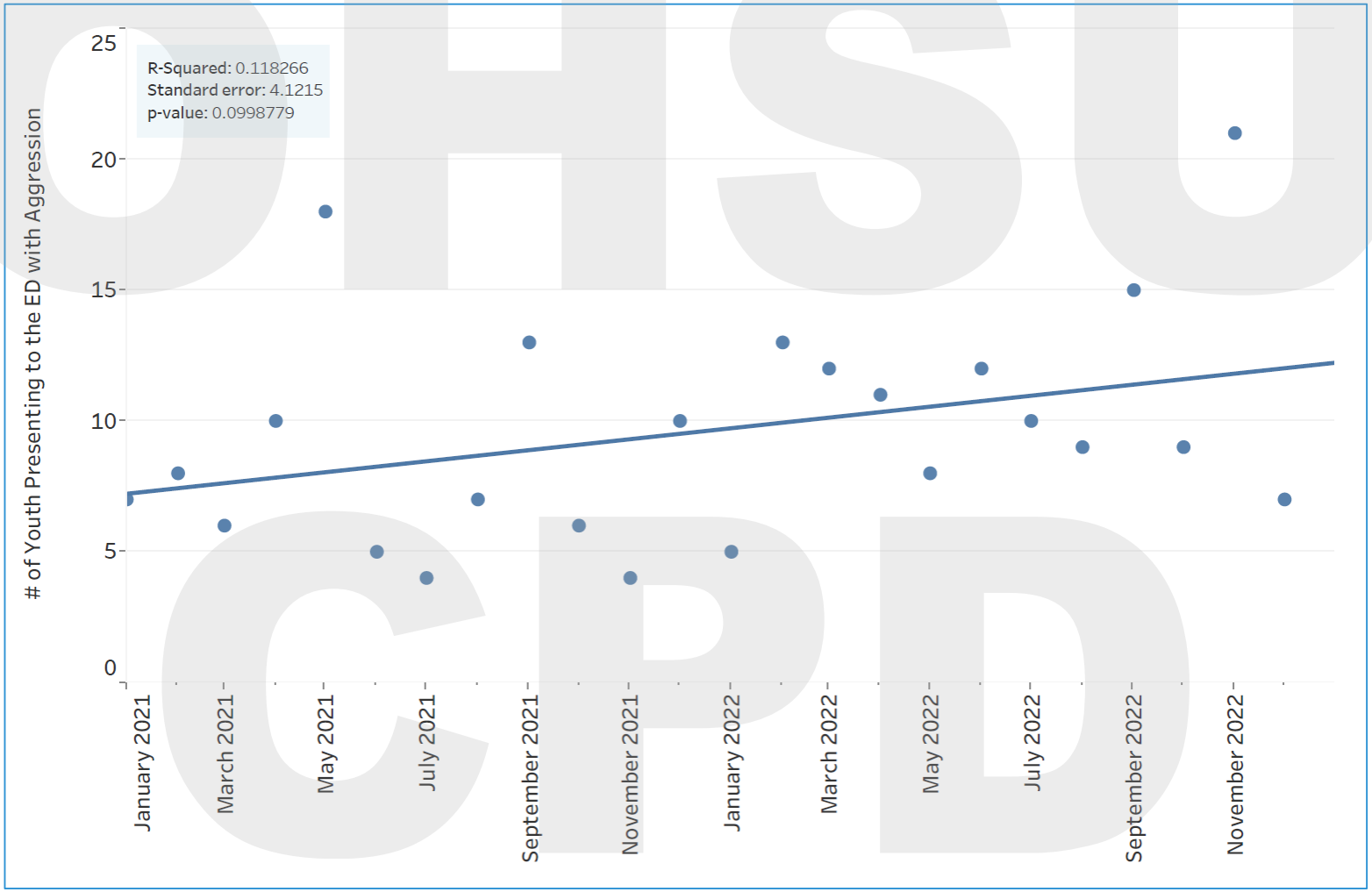
Corresponding Author: Anna M. Cushing, MD, Division of Emergency and Transport Medicine, Children's Hospital Los Angeles, 4650 Sunset Blvd, MS 113, Los Angeles, CA 90027 (acushing@chla.usc.edu).

Families of children with mental health needs increasingly rely on the emergency department (ED) for care. From 2007 to 2016, pediatric mental health ED visits in the US increased by more than 60% at all hospital EDs and by more than 120% at children's hospitals.[1] The ongoing surge in pediatric mental health ED visits may be associated with a combination of factors, including a worsening crisis of pediatric mental illness and shortage of mental health clinicians.[2,3]

Mental health ED visits and hospitalizations have longer lengths of stay and incur higher costs than non-mental health visits.[4-6] As mental health visits have surged, ED lengths of stay have increased, worsening preexisting overcrowding at children's hospital EDs.[7] Pediatric mental health ED visits are commonly repeat visits, and most revisits occur within 6 months of initial presentation.[8,9] However, previous research on pediatric mental health ED revisits has been limited to state-based or single-center studies,[10] which may be subject to local or regional forces.

A better understanding of trends and factors associated with mental health ED revisits would allow for improved resource allocation and interventions tailored to high-risk patients, including implementation of focused prevention efforts and mental health–specific service delivery. Therefore, our objectives were to describe (1) trends in pediatric mental health ED visits and revisits and (2) factors associated with

Number of Youth Presenting to the OHSU ED with Aggression as a Primary Concern

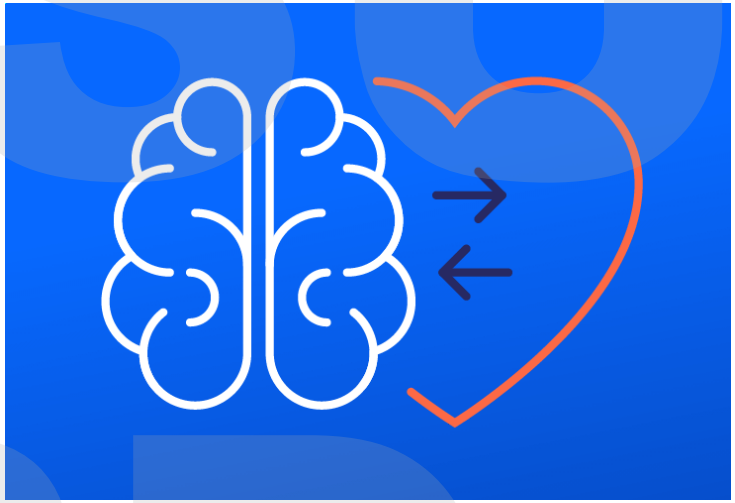


Number of Youth Presenting to the OHSU ED with Aggression as a Primary Concern

	2021	2022
January	7	5
February	8	13
March	6	12
April	10	11
May	18	8
June	5	12
July	4	10
August	7	9
September	13	15
October	6	9
November	4	21
December	10	7
Grand Total	98	132

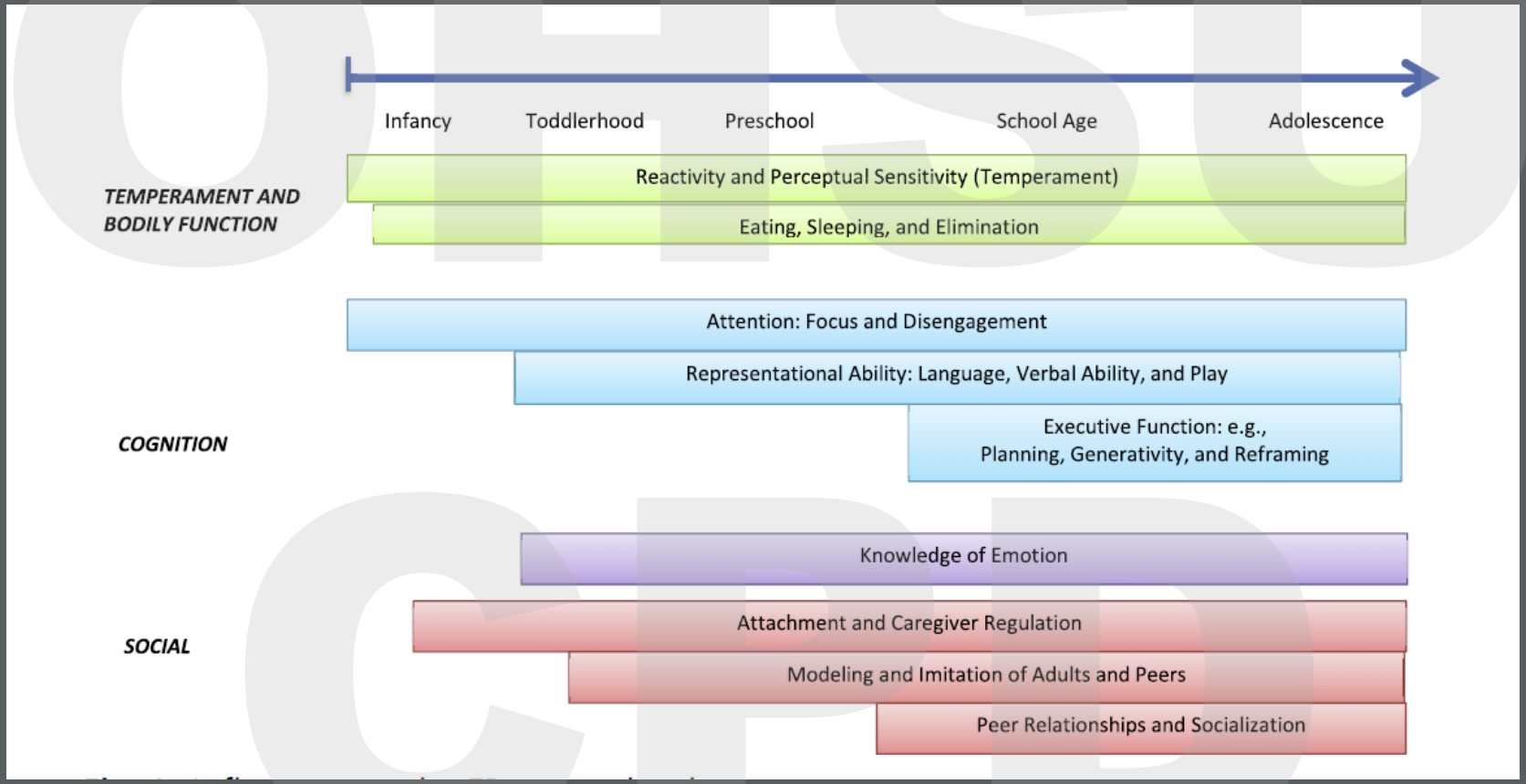
Emotion Regulation

- A complex construct which characterizes the processes that allow an individual to manage emotional arousal



OHSU

Influences on Emotion Regulation Across Development



Crowell JA, Child Adolesc Psychiatric Clin N Am 30 (2021); 467-474

Irritability

- Elevated propensity to anger, relative to peers
- A subtype of emotion dysregulation
- Associated with lability
    - Abnormally frequent shifts into both negative and positive emotions and moods

Tonic and Phasic Irritability

- Tonic irritability = how the child **feels**
  - Easily annoyed and angered, loses temper, stays angry

- Phasic irritability = what the child **does**
  - Anger **outbursts**
    - Previously called “reactive” or “impulsive” aggression
      - As opposed to “proactive” aggression which is premeditated and goal-directed
    - If severe and **explosive**, includes property destruction and physical aggression

Two Irritability Subtypes

- Community sample (N=7924)
- Early-onset irritability: male, childhood ADHD, and elevated ADHD polygenic risk score
- Adolescent-onset irritability: female, adolescent depression, and elevated major depressive disorder polygenic risk score

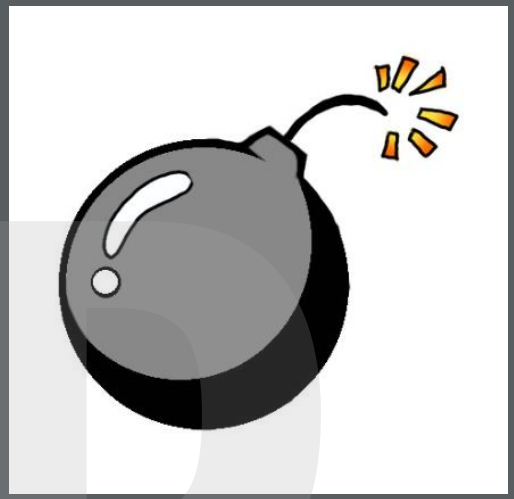
Riglin et al, AJP, 2019

Outbursts are like a Bomb

The Explosion is “phasic Irritability”

The length of the fuse is “tonic Irritability”

What lights the fuse are “triggers”



Irritability is Transdiagnostic

- Anxiety/OCD
- Depression and mania
- ADHD
- Oppositional Defiant Disorder
- Schizophrenia
- Intermittent explosive disorder
- PTSD
- Borderline personality disorder
- Conduct disorder/Antisocial personality disorder

Irritability in Youth Predictive of Problems in Adulthood

- Suicidality
- Decreased education
- Income

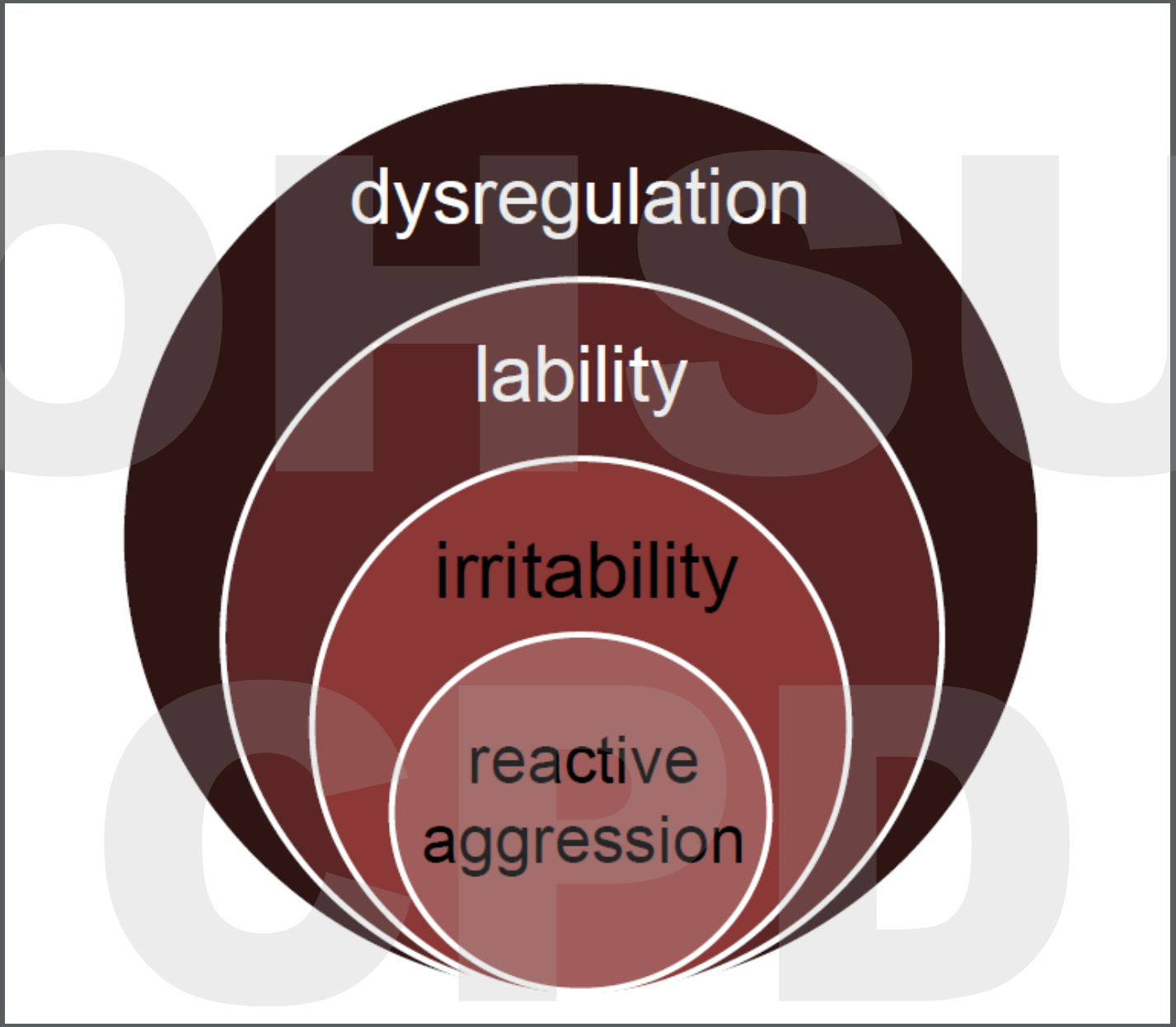
Stringaris et al, 2009; Pickles et al, 2010

Explosive Outbursts

- 30 million children present to EDs annually
  - 3-4% with agitation/aggression with nearly 7% of them needing to be restrained

- About 70% of psychiatrically hospitalized 5-12 y/o children referred for explosive outbursts

Adimando AA, Pediatric Emergency Care, 2010; Dorfman DH, Pediatric Emergency Care, 2006



Leibenluft E and Kircanski K, Child Adolesc Psychiatric Clin N Am 30 (2021); 667-683

OHSU

? DMDD ?

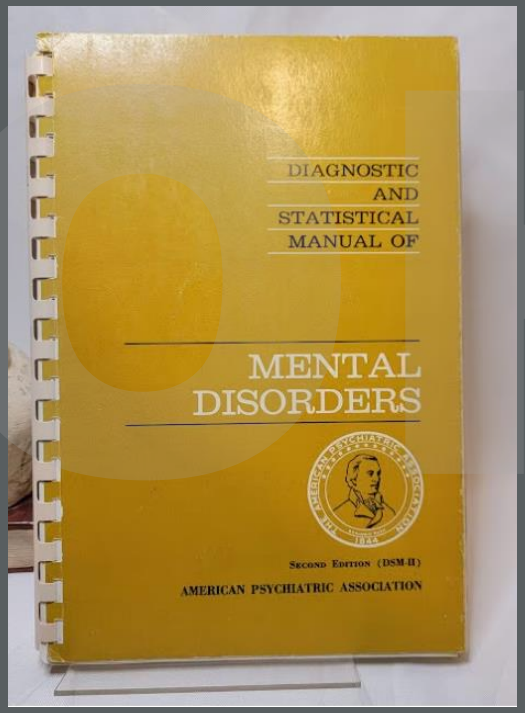
DMDD Diagnostic Criteria

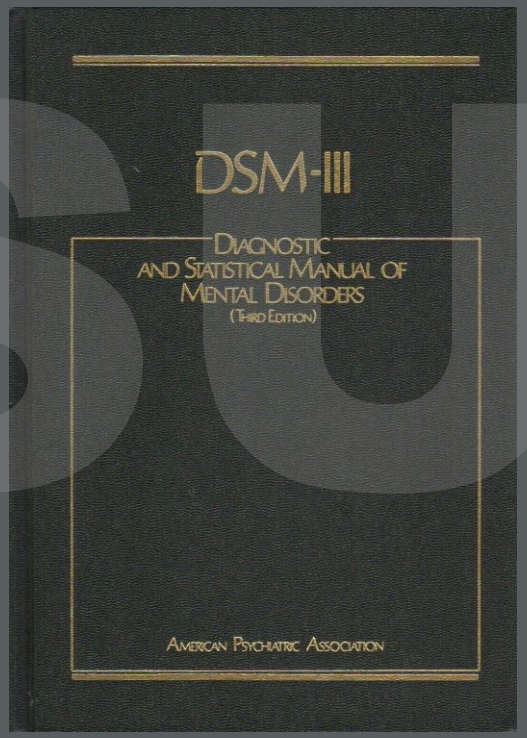
Adapted from DSM -5

- Severe, recurrent temper outbursts (verbal and/or physical)
  - Occurring ≥ 3x/week
  - Inconsistent with situation or developmental level
  - Verbal outbursts MUCH more common than physical aggression
- Mood between outbursts is angry or irritable most of day, nearly every day, and observable by others
- Present for more than 12 months (chronic)
- Present in ≥ 2 settings (school, home, peers)

Disruptive Mood Dysregulation Disorder (DMDD)

- Newly classified disorder, first appearing in the DSM-5 in 2013
- Developed to decrease diagnosis of bipolar affective disorder in youth
  - Capture chronically irritable youth





Hyperkinetic Child Syndrome

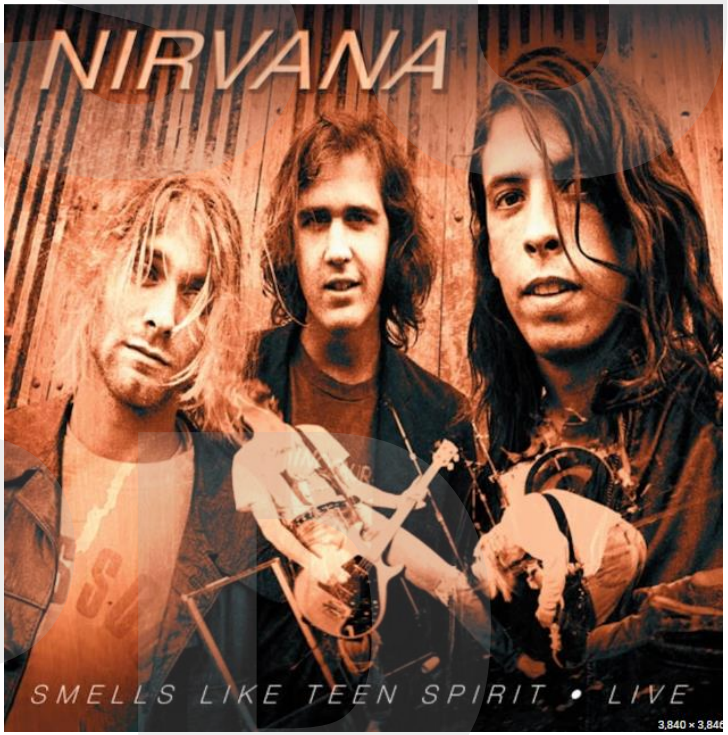
* Criteria included emotionality and variability

ADHD

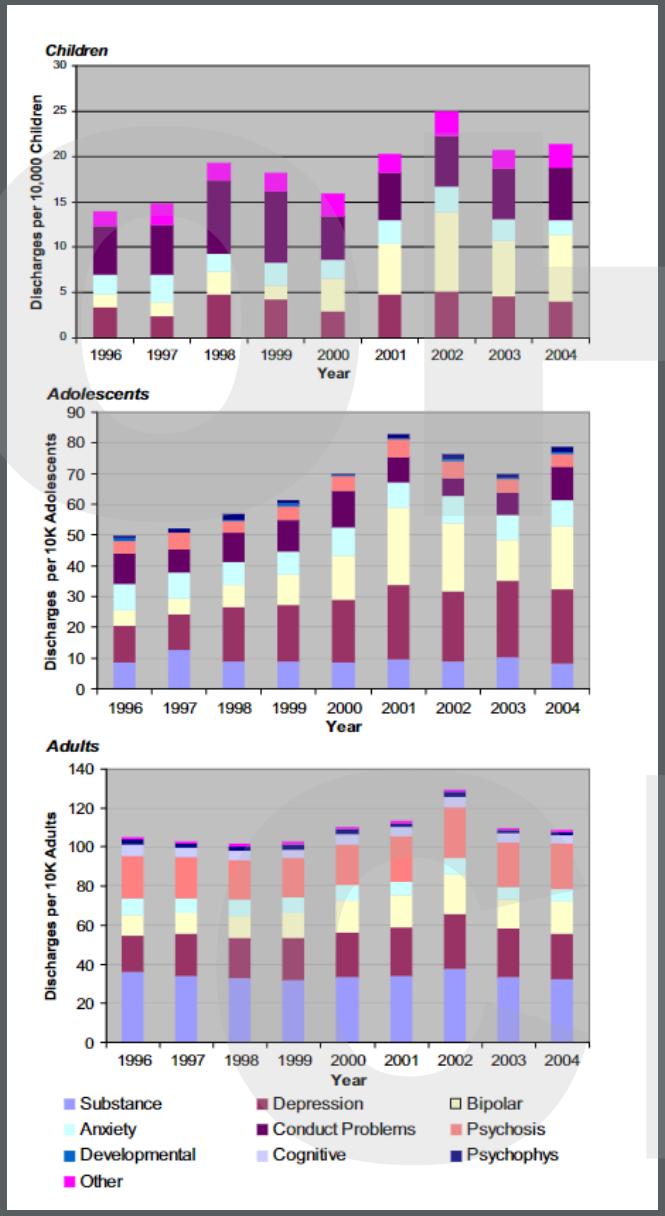
* Emotionality and variability criteria removed

Bipolar Disorder Filled the Void

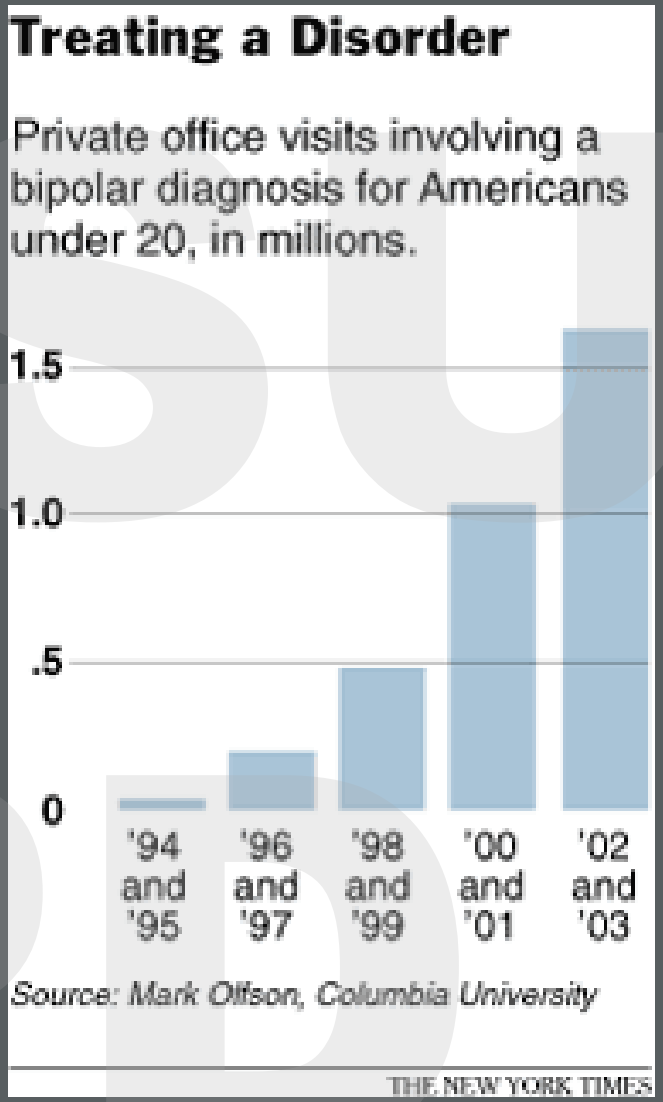
- Bipolar disorder in youth is NOT episodic
- Instead, it is characterized by chronic, severe irritability and ADHD symptoms/behaviors
- **Problem**
  - ADHD and irritability in youth are much more common than episodic bipolar disorder



OHSU



Blader & Carlson, Biol Psychiatry 2007



BMJ, Sept 2007

OHSU

What We Have Learned Since

- Irritability in youth predicts later depression and anxiety, NOT bipolar disorder
  - Meta-Analysis (N=7,594) by Vidal-Ribas et al, 2016

- So, chronic, severe irritability is NOT the developmental phenotype of bipolar disorder

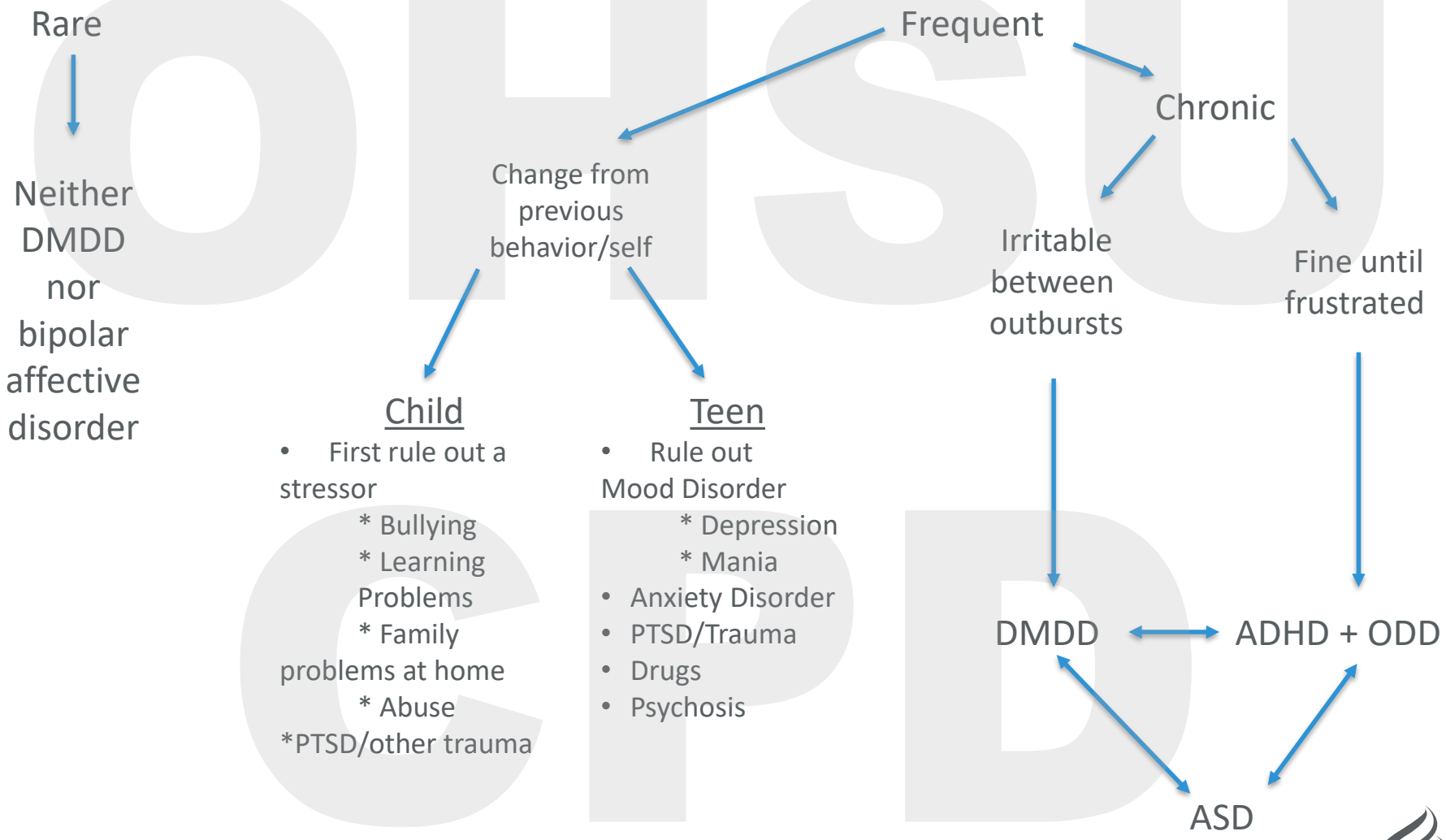
- The diagnosis of bipolar disorder in youth should be reserved for those who have experienced distinct manic episodes

Has an Impact on Treatment

- Bipolar disorder is a relative contraindication to using stimulants and SSRI's
- Stimulants may decrease irritability in ADHD
  - Post-hoc analysis of the MTA study
- Treatment trial of DMDD at NIH
  - MPH + citalopram vs. MPH + placebo
  - Active treatment helpful and no serious adverse effects

de la Cruz et al., 2015; Towbin et al, 2020

Differential Diagnosis of Explosive Outbursts



Treatment of Irritability/Explosive Outbursts

Psychosocial Interventions

- Depends on underlying diagnosis
  - Anxiety disorder – CBT
  - Mood disorder – various therapies with emphasis on behavioral activation and improving sleep/exercise
  - ADHD/ODD – Parent management training
  - Trauma/PTSD – trauma focused CBT
  - Borderline personality disorder – DBT

OHSU

Pharmacologic Interventions

- Also depends on underlying diagnosis/diagnoses

- Use evidence based treatments for underlying diagnoses whenever possible

OHSU

Pharmacologic Interventions

- ADHD +/- ODD
  - Stimulants with or without alpha-2 agonists
  - Stimulants at maximum effect with addition of either valproic acid or risperidone (some evidence)
- Anxiety disorders
  - SSRI or duloxetine
- ASD with irritability
  - Risperidone or aripiprazole

Approach for Most Children with "Mood Dysregulation"

- Start with a good diagnostic assessment
  - Common disorders: ADHD/ODD, anxiety, depression, and ASD
  - DMDD
- Consider referral for neuropsychological testing

OHSU

Approach for Most Children with "Mood Dysregulation"

- Parents to keep careful records of frequency, intensity, number and duration of outbursts

- Use this data to judge response to treatment

Approach for Most Children with "Mood Dysregulation"

- Maximize the treatment of the base condition
  - If symptoms/behaviors persist, add another medication
- Pay attention to weight gain
- Use second generation antipsychotics judiciously

Pharmacologic Interventions

- Major depressive disorder
  - Fluoxetine, escitalopram or other SSRI

- Bipolar affective disorder
  - Lithium and/or second generation antipsychotics

Pharmacologic Interventions

- DMDD
  - Some evidence for use of SSRI and stimulant (citalopram and MPH)
- Borderline personality disorder
  - Treat comorbid conditions
  - Treat symptom clusters
- PTSD
  - No FDA approved medicines for PTSD in children and adolescents
  - Alpha-2 agonists

PCPs and Primary Prevention

- Recognizing psychopathology among parents and encouraging assessment and treatment
- Help parents with their skills
  - Expression of positive parental emotion
  - Sensitivity to children's emotions in play
  - Listening effectively to children's expression of sadness
- Intervene on fear-based parenting practices

Thank You

johnsoky@ohsu.edu