



MASSACHUSETTS
GENERAL HOSPITAL

PSYCHIATRY ACADEMY

Pediatric Depression: How to Detect, Diagnose and Treat Children with Depression

Mai Uchida, M.D.

*Director, Clinical and Research Program for
Pediatric Depression*

Massachusetts General Hospital

Associate Professor of Psychiatry

Harvard Medical School

WWW.MGHCME.ORG



Disclosures

My spouse/partner and I have the following relevant financial relationship with a commercial interest to disclose:

I have consulted to NTT, and have received royalties from the following books:

- “ASK THE GENIUSES ABOUT THE FUTURE” (MAGAZINE HOUSE PUBLISHING),
 - “SOCIAL JUSTICE” (BUNSHUN SHINSHO),
 - “REAPPRAISAL” (JITSUGYO NO NIHONSHA),
- “PRESCRIPTION FOR DAILY MENTAL CRISES” (DAIWA SHOBO)
“LIVING DEPRESSION” (BUNSHUN SHINSHO)
 - “BECOMING A WORKING MOM” (KADOKAWA)
- “WHAT PARENTS NEED TO KNOW WHEN PARENTING FEELS CHALLENGING” (NIKKEI BP)



Pediatric Depression Stats: Prevalence

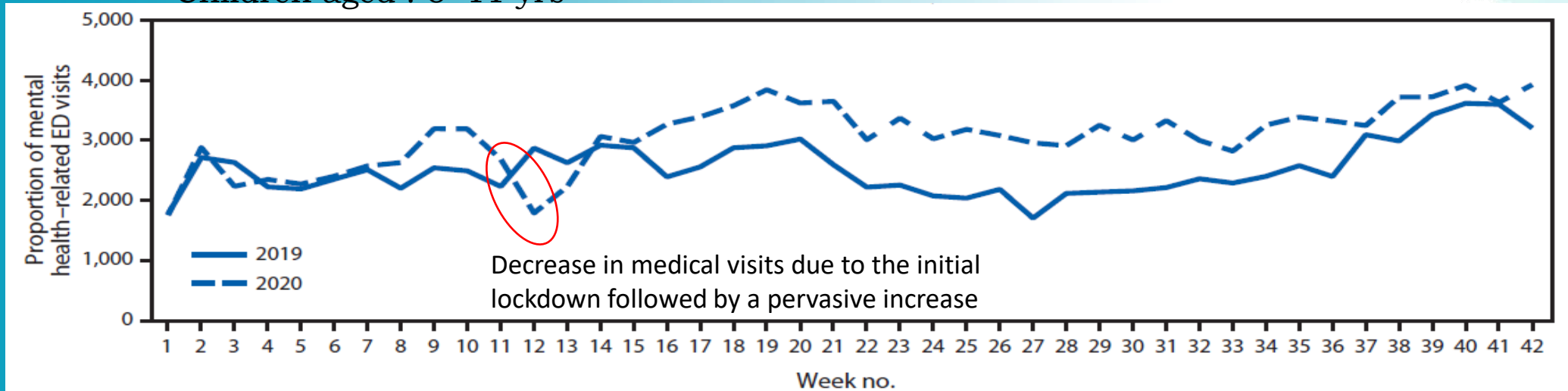
- Major Depressive Disorder is diagnosed in
 - 4.4% (approximately 2.7 million) children ages 3-17 had Depression.
 - 15.1% of 12-17 year old adolescents had a major depressive episode.
- The prevalence of Depression steadily increases over the developmental years and has a few identifiable peaks. The first peak is in adolescence.

Trends in emergency department visits during the COVID-19 pandemic

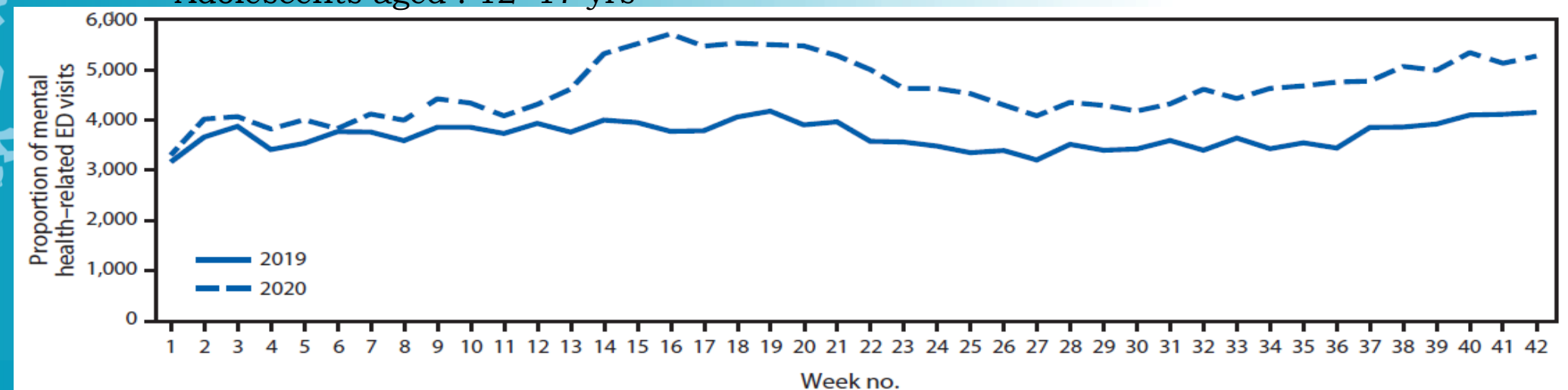
Percentage of emergency department visits related to mental health disorders among children (<18 years old) (per 100,000 emergency department visits) 2019-2020



<Children aged : 5~11 yrs>



<Adolescents aged : 12~17 yrs>



Trends in emergency room visits related to mental illness: 2019-2022



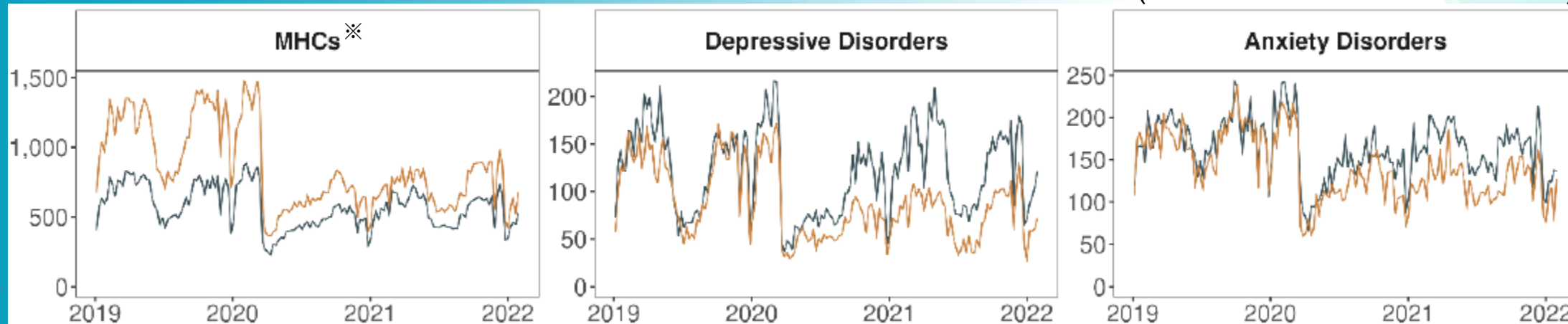
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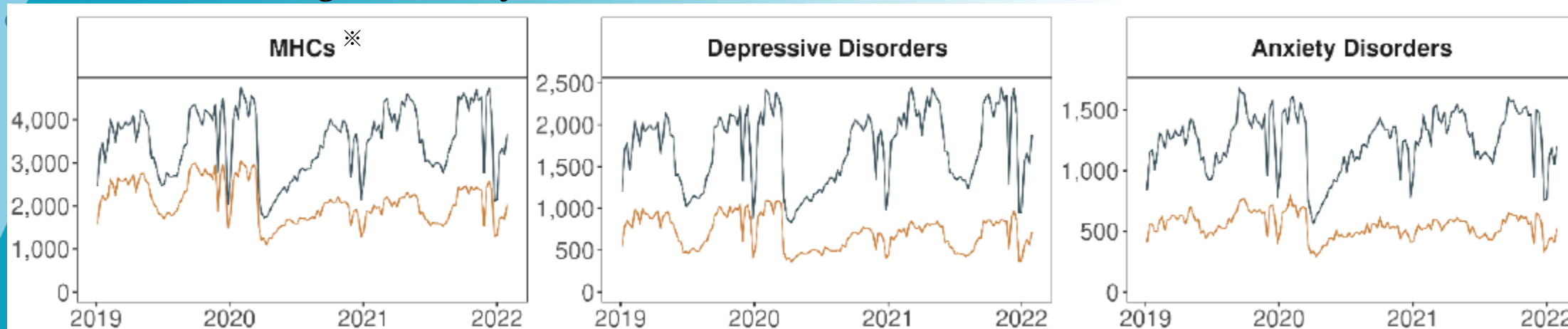
<Children aged : 5~11 yrs>

— boys — girls

※ MHCs (mental health conditions)



<Adolescents aged : 12~17 yrs>



Trends in emergency room visits related to mental illness: 2019-2022



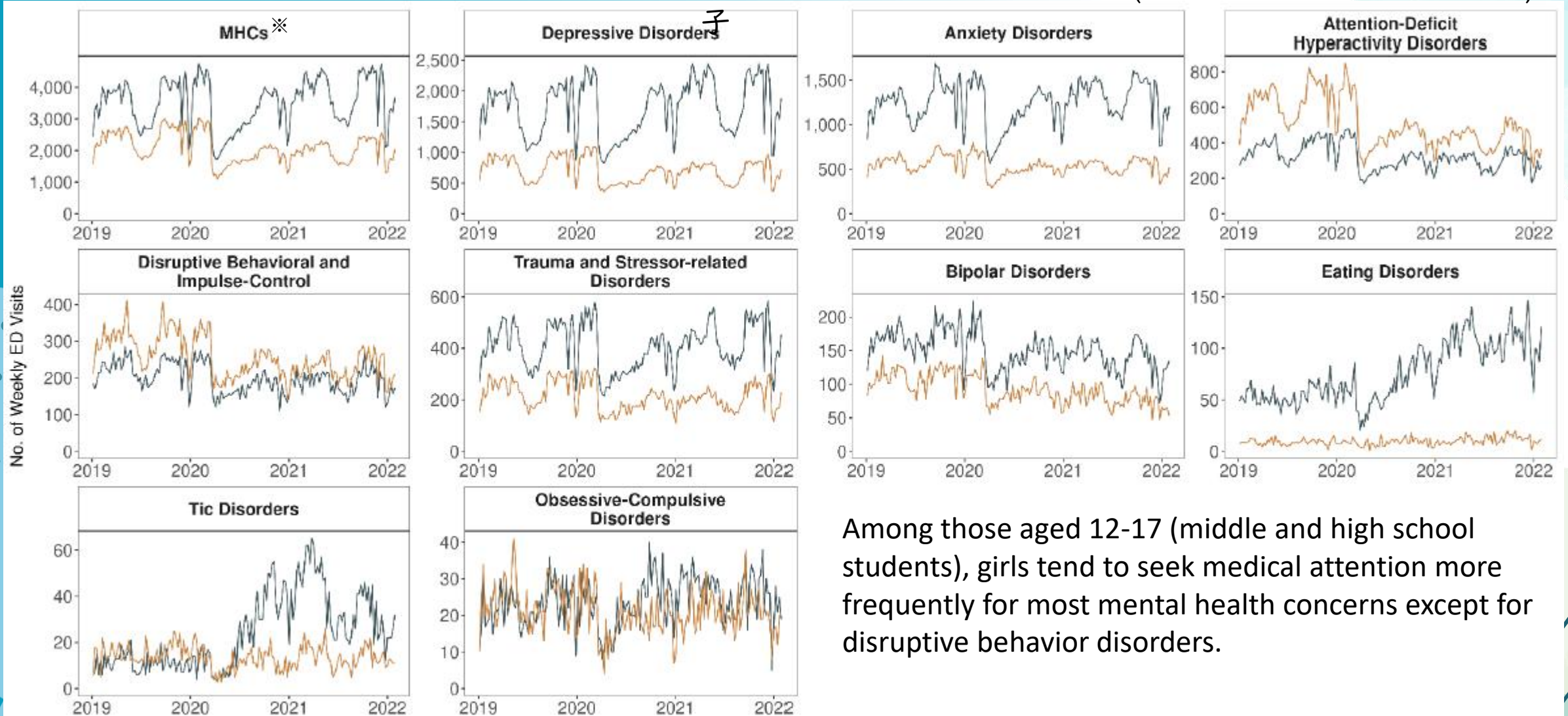
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<Adolescents aged : 12~17 yrs>

— 男子 — 女

※ MHCs (mental health conditions)



Among those aged 12-17 (middle and high school students), girls tend to seek medical attention more frequently for most mental health concerns except for disruptive behavior disorders.

Diagnostic Criteria of Depression

How do they present in children?



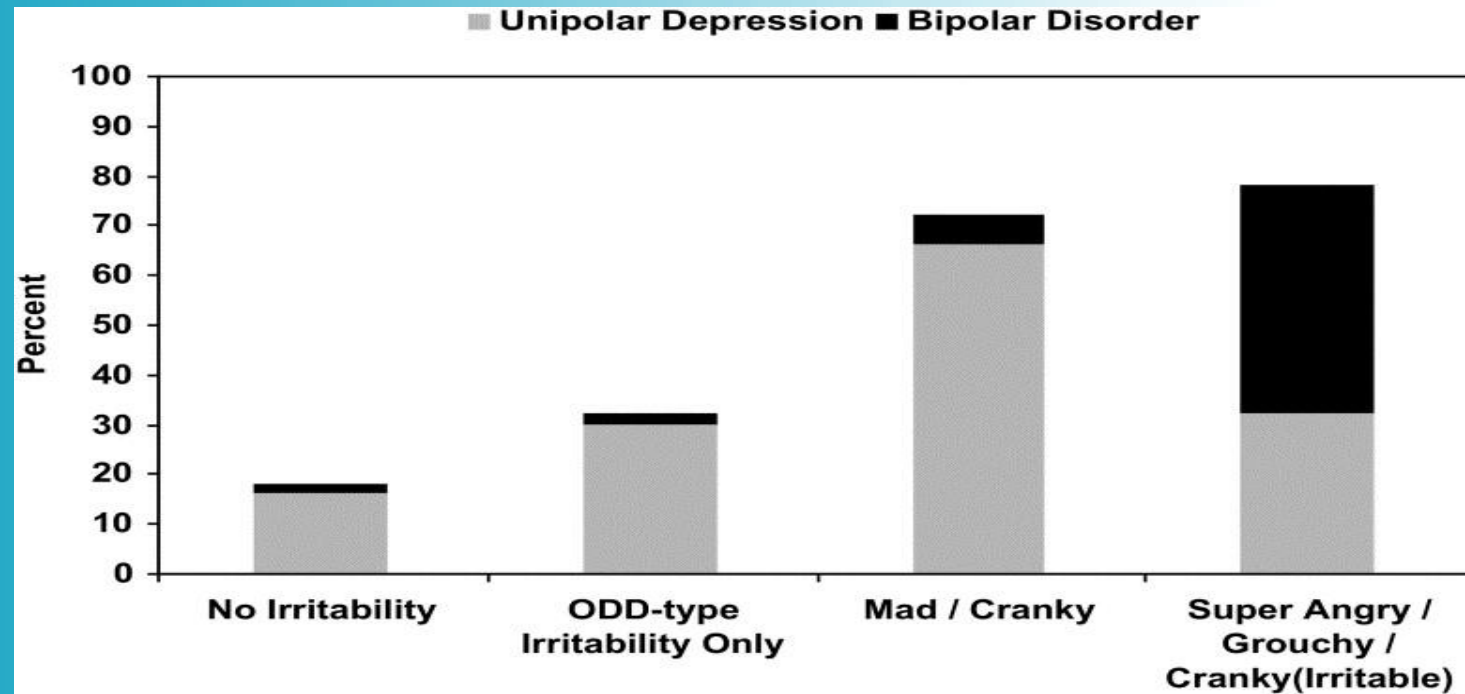
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- **Major Depressive Episode:**
- A) >2 weeks history of depressed mood (unhappy mood; this could mean **irritable, grumpy, easily annoyed, bored**, or sad and melancholic) *“He looks deflated.”*
- B) >4/ 7 of following symptoms.
 - Sleep (insomnia/ hypersomnia)
 - Interest (loss of interest)
 - **Guilt** (excessive guilt or feelings of worthlessness) *“I’m a bad boy.” “I’m not good at anything.”*
 - **Energy** (loss of energy/ physical complaints) *“tummy aches”*
 - **Concentration** (difficulty concentrating or making decisions) *“Can’t chose his clothes.”*
 - **Appetite** (change in appetite or weight)
 - **Psychomotor** agitation or retardation
 - **Suicidal thoughts** *“I shouldn’t have been born.”*



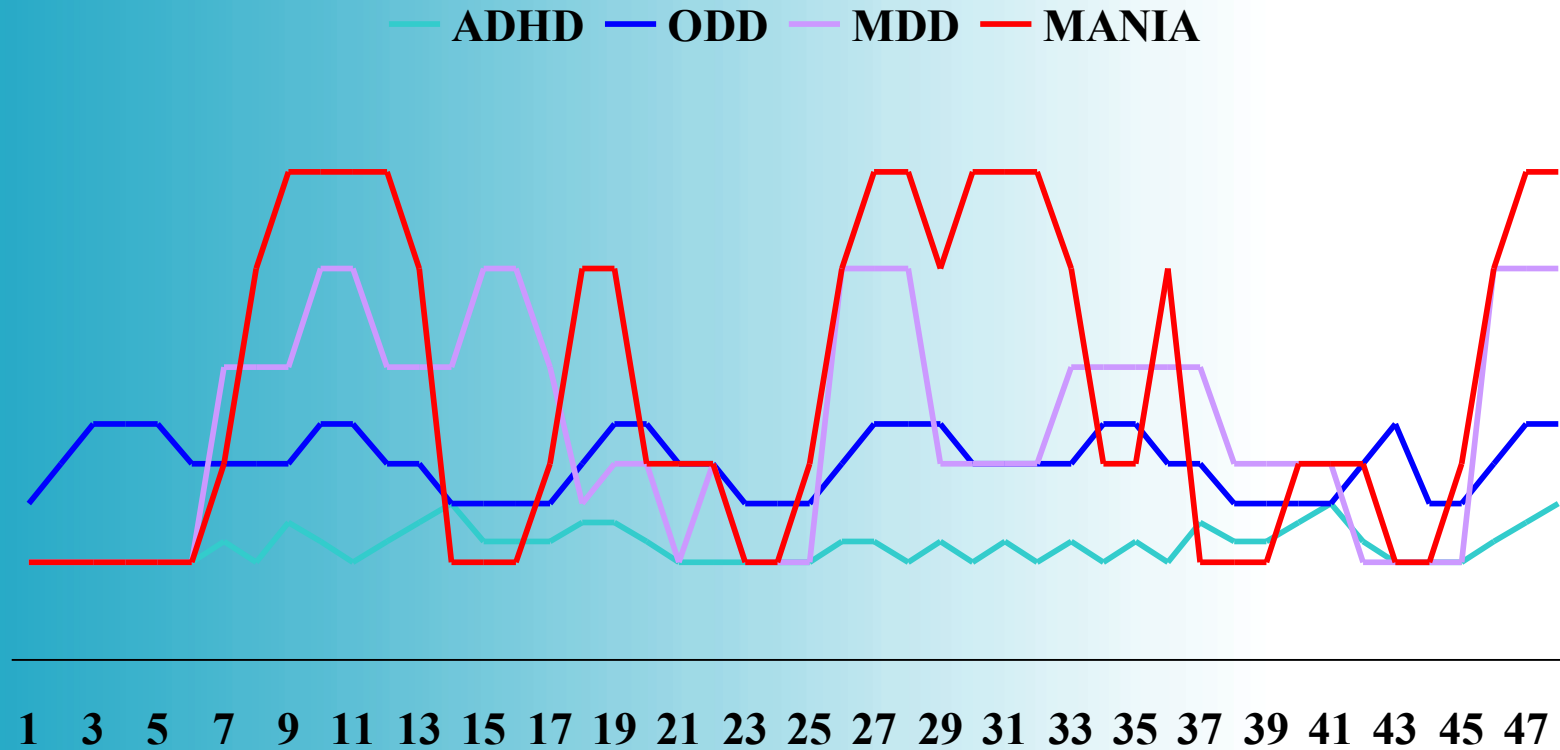
Different Levels of Irritability



Mick, 2010



Levels of Irritability



Mick, 2007



Currently FDA Approved Antidepressants & Indications

- Major Depressive Disorder
 - Fluoxetine (Prozac[®]) ages 8 – 17
 - Escitalopram (Lexapro[®]) ages 12 – 17
- Obsessive Compulsive Disorder
 - Fluoxetine (Prozac[®]) ages 7 – 17
 - Sertraline (Zoloft[®]) ages 6 – 17
 - Fluvoxamine (Luvox[®]) ages 8 – 17
 - Clomipramine (Anafranil[®]) ages 11 – 17



What do most child psychiatrists do?

- 1: SSRIs
- 2: Second SSRI
- 3. SNRI vs Wellbutrin? (Wellbutrin can be added to a SSRI)
- 4. Adding Antipsychotics? (Abilify, Seroquel, Risperdal, Geodon, Latuda, Vraylar, Rexulti, Caplyta)
- 5. Lamictal?
- At the same time, can we treat Anxiety? (hydroxyzine, propranolol, Buspar, Benzos)



FDA Black Box Warning About Antidepressants in Children Increasing Suicidal Ideation

- Aggregate analyses of 25 placebo controlled studies of 9 antidepressants found elevated rates of suicidal ideation and attempts noted in children and adolescents taking antidepressants
- 9 Antidepressants reviewed: fluoxetine, sertraline, paroxetine, fluvoxamine, citalopram, bupropion, venlafaxine, nefazodone, mirtazapine
- SI was reported by approximately 4% in those taking antidepressants vs. 2% in those taking placebo
- No suicides occurred in these trials
- Black Box Warning of Increased Suicidal Ideation to apply to all antidepressants (2004)

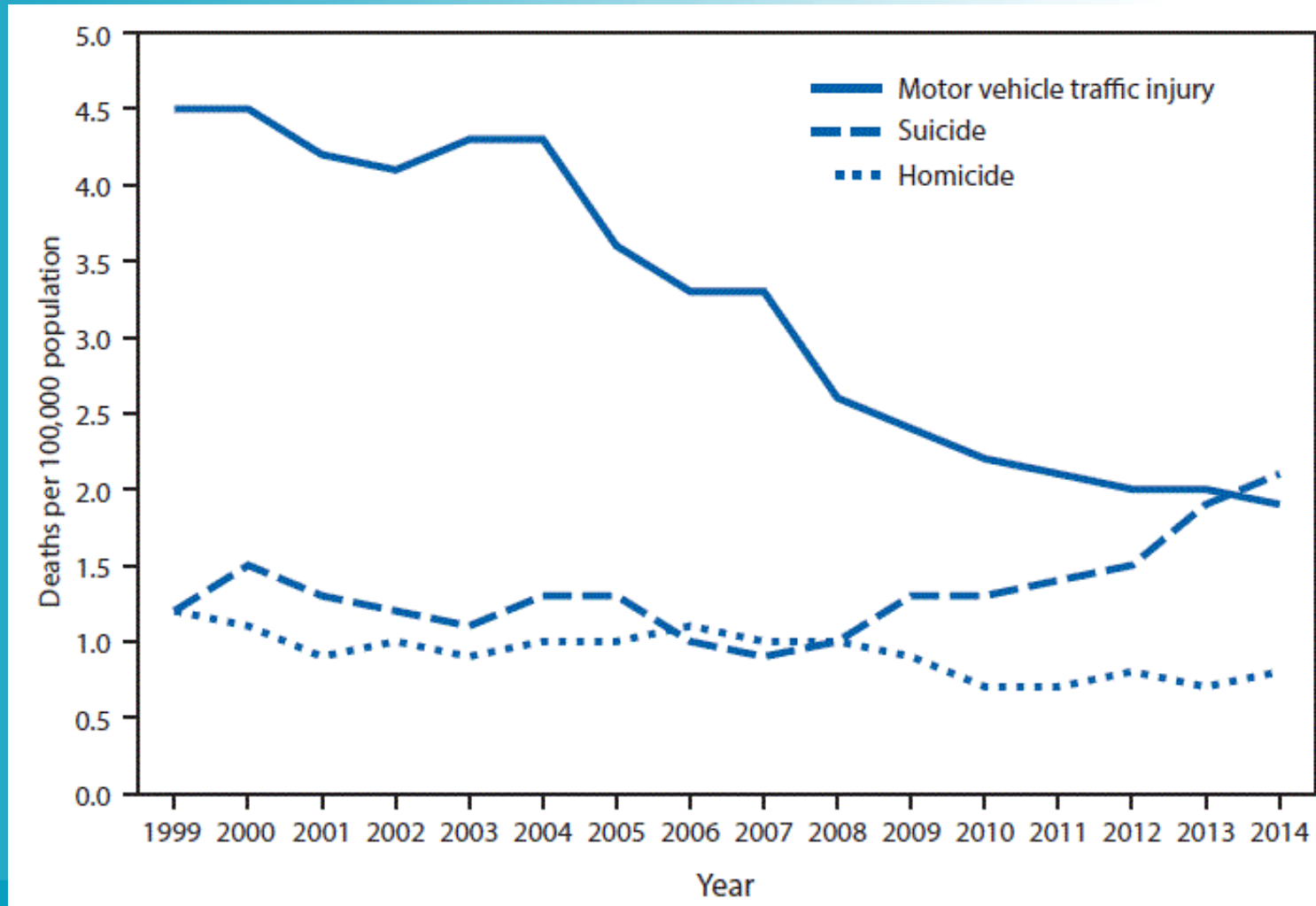


How To Think About The FDA Black Box Warning

- Baldessarini and Tonda (2007):
 - Reviewed 29 ecological studies on correlation between antidepressant prescriptions and suicide rates
 - 9 studies found *inverse* correlations of increased use of modern antidepressants with diminishing national, regional or temporal trends in suicide rates
 - 14 studies found positive correlations in some sex or age subgroups, who were inconsistent across the studies
 - 6 found no significant relationships.
- There is no consistent evidence for suicidality “caused” by antidepressants, but there is overwhelming evidence that untreated depression increases the risk of suicide.
- Discuss this with the patients and their parents, and make a clinical judgment depending on the clinical situation.



Death Rates for Motor Vehicle Traffic Injury,* Suicide,[†] and Homicide[§] Among Children and Adolescents aged 10–14 Years — United States





FDA Warning of Citalopram and QTc

- In 2011, the US Food and Drug Administration (FDA) announced a label change to the SSRI citalopram to reflect dose-related prolongation of the cardiac repolarization interval (QTc interval), which could precipitate fatal arrhythmias.
- They recommended citalopram no longer be prescribed at doses greater than 40 mg per day in adults.
- No information was provided for children being prescribed SSRIs.

Electronic Medical Record Study of Children on SSRIs and EKG



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Using the i2b2 software, patients with the following characteristics were selected from the Partners Healthcare electronic medical record for inclusion in the dataset.

- Children and adolescents ages 5-18
- With at least one electronic prescription of an antidepressant medication or methadone
- With an EKG within 14-90 days of prescription between February 1990 and August 2011



Electronic Medical Record Study of Children on SSRIs and EKG

- Among other antidepressants, the longest QTc intervals were observed among youth on **escitalopram**
- The lowest QTc intervals were observed among youth on **sertraline**, consistent with previous pediatric reports that sertraline does not prolong QTc in children



Electronic Medical Record Study of Children on SSRIs and EKG

- Results were reassuring and suggest that:
 - Most antidepressants do not meaningfully and consistently prolong QTc at doses typically prescribed for children
 - Citalopram is not associated with significantly prolonged QTc at doses typically prescribed in children
 - For those patients at higher cardiac risk, sertraline may be among the safest options