Psychiatric Care for the Perinatal Woman

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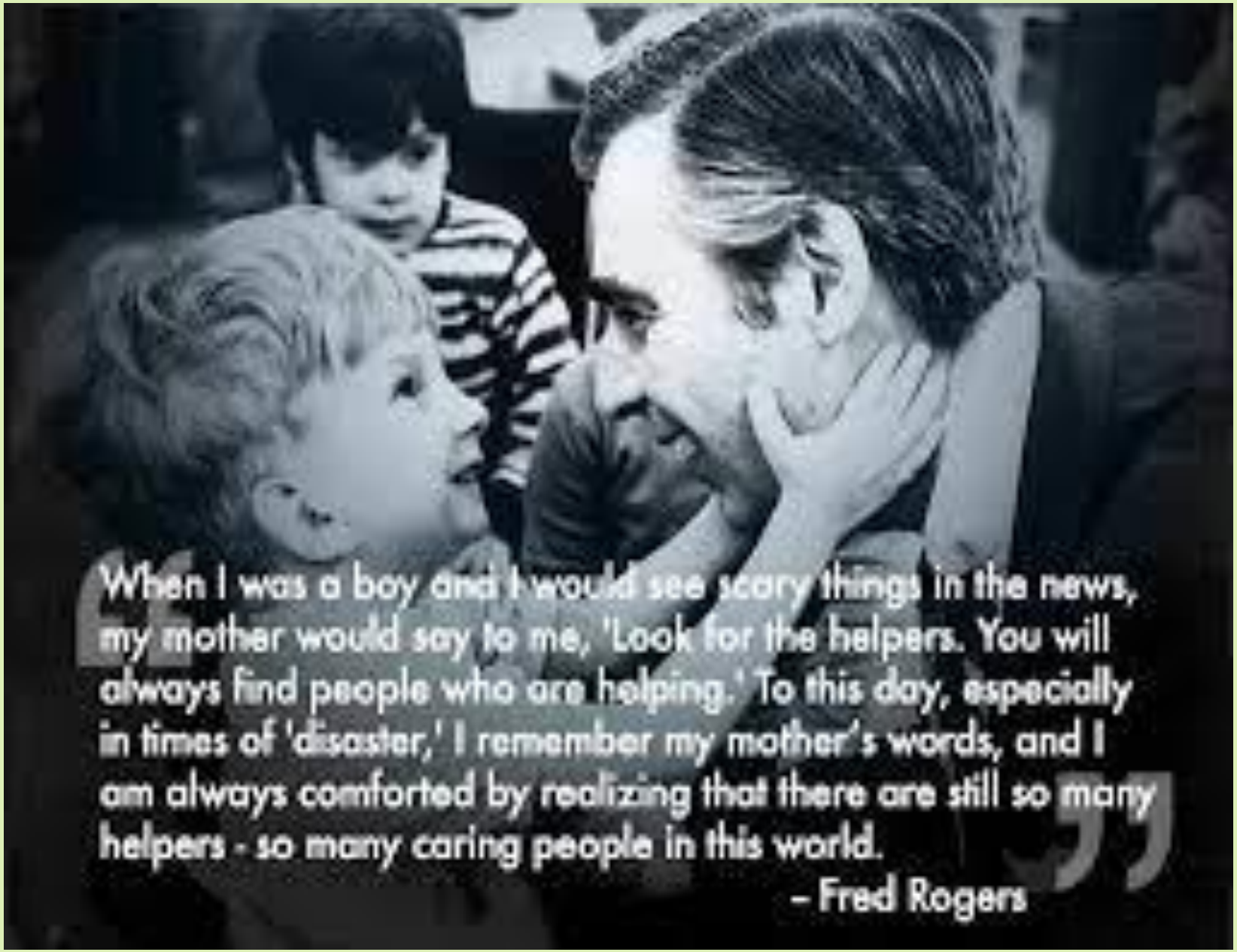
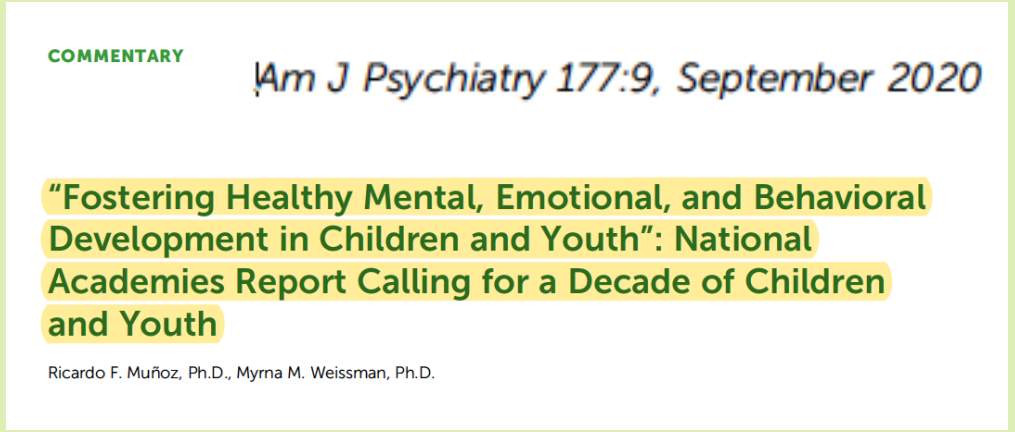

When I was a boy and I would see scary things in the news, my mother would say to me, 'Look for the helpers. You will always find people who are helping.' To this day, especially in times of 'disaster,' I remember my mother's words, and I am always comforted by realizing that there are still so many helpers - so many caring people in this world.
– Fred Rogers

Public health urgency

“People don't care how much you know until they know how much you care”

— **Theodore Roosevelt**


COMMENTARY

Am J Psychiatry 177:9, September 2020

"Fostering Healthy Mental, Emotional, and Behavioral Development in Children and Youth": National Academies Report Calling for a Decade of Children and Youth

Ricardo F. Muñoz, Ph.D., Myrna M. Weissman, Ph.D.

The 2019 report, "Fostering Healthy Mental, Emotional, and Behavioral Development in Children and Youth," began on a more somber note. Even though the mental health professions have developed many effective treatments for mental disorders, the prevalence of these disorders is not declining. The 2019 report points out that "rates of depression, suicide, and self-harm among young people have actually been increasing: in 2015, suicide was the second most common cause of death among young people aged 15 to 24, and between 2005 and 2014, the proportion of adolescents experiencing a major depressive episode increased from 8.7 percent to 11.3 percent.

Maternal Depression: a Lifecycle Lens

Investigators and clinicians support treating depression during pregnancy to mitigate depression's effects on both the mother and her child. For example, exposure to depression during the fetal period has been shown to increase the risk for depression in offspring at age 16 by 4.7 times compared with unexposed offspring, even when the mother recovered from depression after birth. The relationship between maternal depression and child developmental adversity is a continuum that begins during pregnancy.

Even subtle problems in fetal brain development can predispose the child to mental illness in adulthood. Thus, the quality of the fetal environment during sensitive periods can dictate the vulnerability of individuals to a broad array of diseases across the lifespan. Fetal programming is widely accepted as part of the inheritance of obesity, metabolic disease, and diabetes.

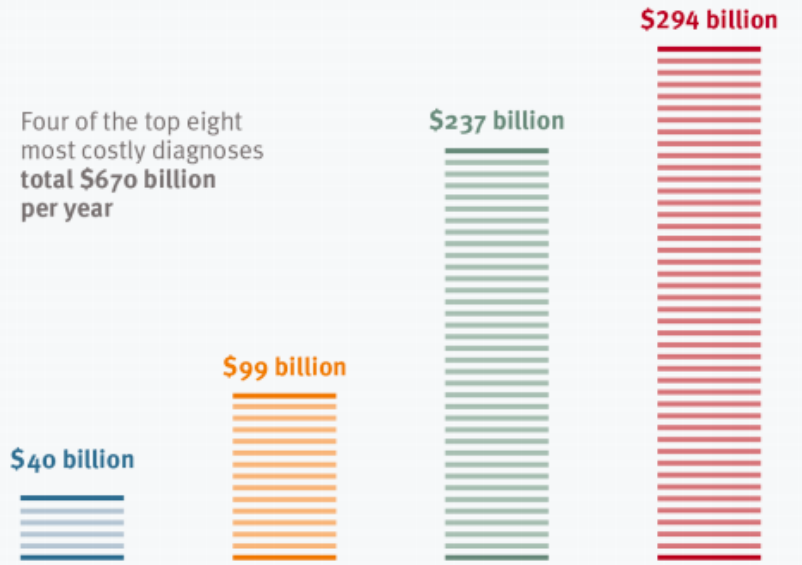
Am J Psychiatry 174:3, March 2017

Psychiatry and Obstetrics: An Imperative for Collaboration

M. Camille Hoffman, M.D., M.Sc., Katherine L. Wisner, M.D., M.S.

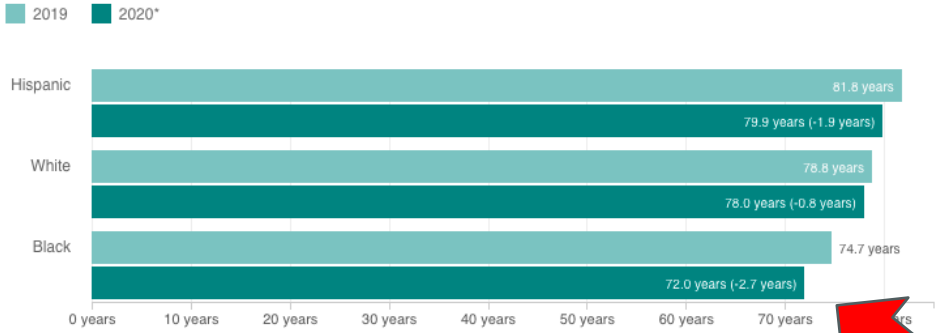
Adult Diseases Associated with Childhood Adversity Dominate U.S. Health Care Costs

Four of the top eight most costly diagnoses **total $670 billion per year**



SOURCES: WATERS, GRAF (MILKEN INSTITUTE, 2018); GREENBERG ET AL. (2015); AMERICAN DIABETES ASSOCIATION (2018)

U.S. Life Expectancy Declined In 2020



***Notes**

2020 estimates are based on provisional data from January through June.

Source: CDC

Credit: Connie Hanzhang Jin/NPR

ACE Study

- Dr. Vincent Felliti & Dr. Robert Anda
- Study to examine how childhood events affect adult health
- 17000 participants
  - Middle class
  - Middle aged
  - 75% white
  - 40% with college degrees
  - all with jobs and good health care
- 10 Adverse Childhood Experiences (ACEs)

The three types of ACEs include

ABUSE	NEGLECT	HOUSEHOLD DYSFUNCTION	
			
Physical	Physical	Mental Illness	Incarcerated Relative
			
Emotional	Emotional	Mother treated violently	Substance Abuse
			
Sexual		Divorce	

WHAT IMPACT DO ACEs HAVE?

3 Realms of Adverse Childhood Experiences

National Academy of Medicine

- An estimated 61.5% of adults and 48% of children in the United States have been exposed to ACEs, with more than one-third of these having multiple exposures.
- Children ages 0-3 are particularly vulnerable

Vibrant and Healthy Kids: Aligning Science, Practice, and Policy to Advance Health Equity

A Report from the National Academies

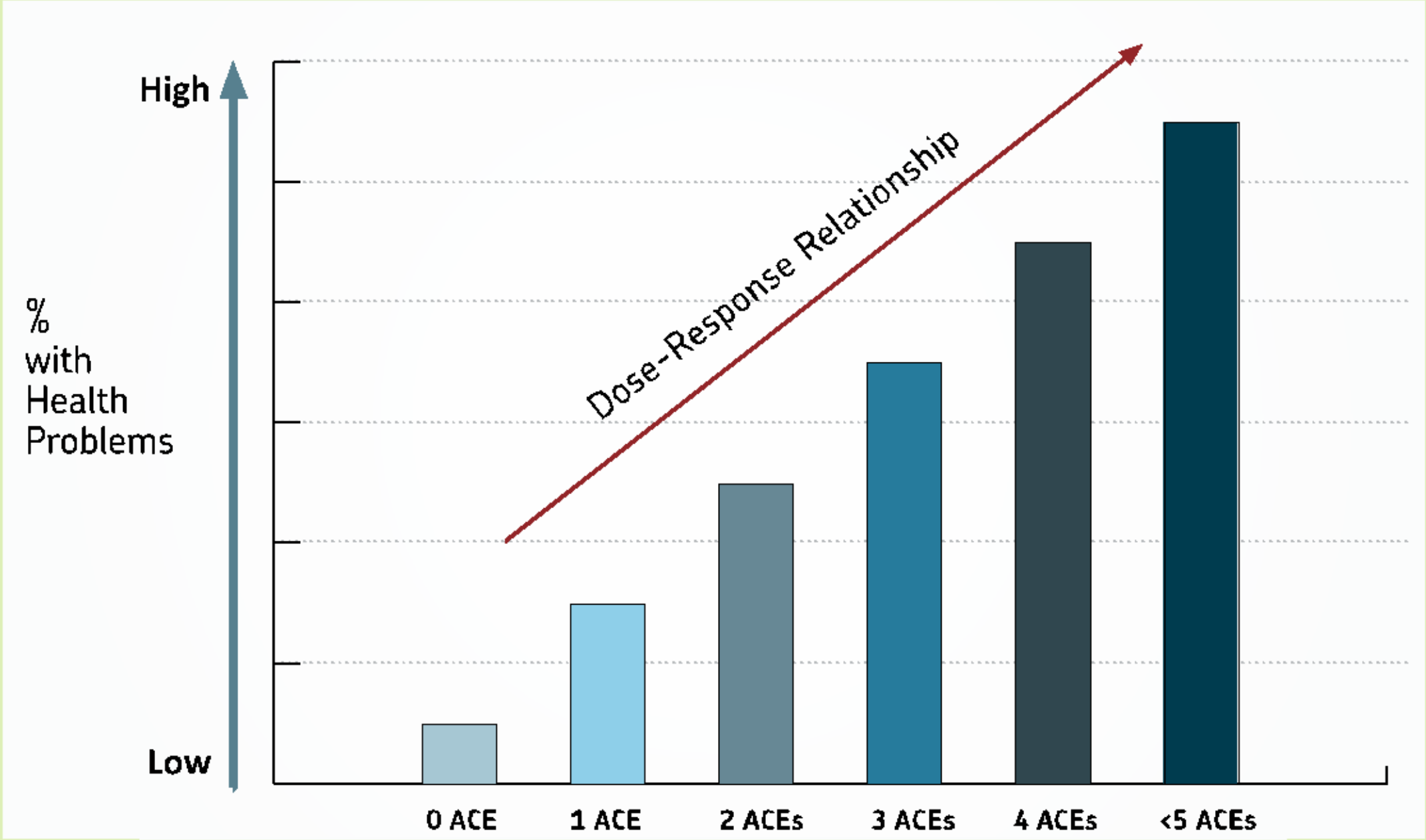
Vibrant and Healthy Kids: Aligning Science, Practice, and Policy to Advance Health Equity, the third in a series of consensus reports from the National Academy of Medicine's Culture of Health Program, is now available as a free PDF download.

The report outlines steps needed to move children who are at risk for negative outcomes toward positive health trajectories and reduce health disparities.

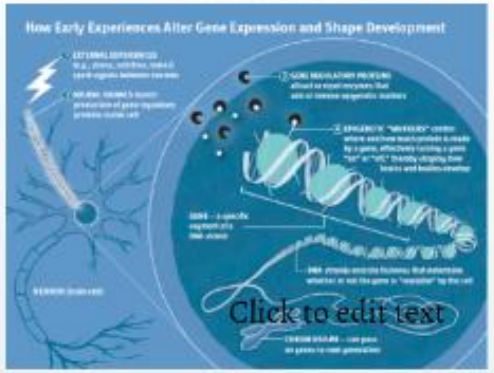
Download the Report

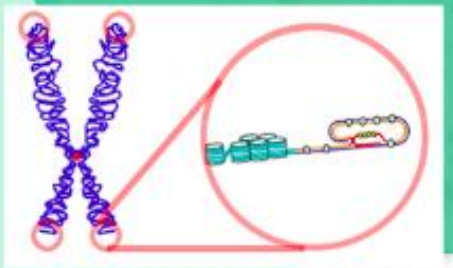
Additional Report Resources

ACE Score and Health Problems



Genetics and ACEs





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Previous Article

Volume 174, Issue 12, December 01, 2017, pp. 1134-1136

Next Article

Epigenetic Programming: A Putative Neurobiological Mechanism Linking Childhood Maltreatment and Risk for Adult Psychopathology

Brandon C. McKinney, M.D., Ph.D.

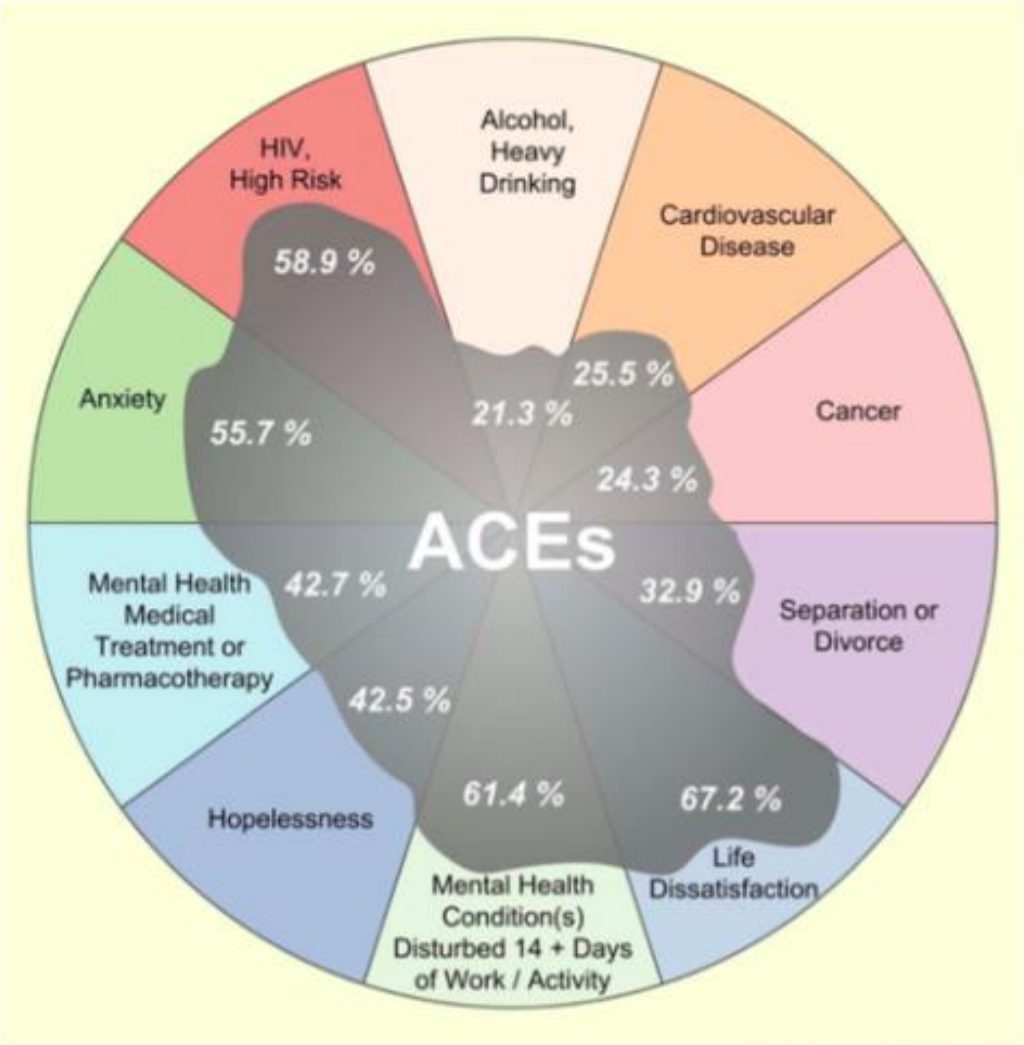
https://doi.org/10.1176/appi.ajp.2017.17101074

EDITORIALS

Epigenetic Programming: A Putative Neurobiological Mechanism Linking Childhood Maltreatment and Risk for Adult Psychopathology

Brandon C. McKinney, M.D., Ph.D.

Population Attributable Risk of ACEs



Adapted from ACE Interface 2013

FROM: CHILDHOOD ABUSE, HOUSEHOLD DYSFUNCTION, AND THE RISK OF ATTEMPTED SUICIDE THROUGHOUT THE LIFE SPAN: Â FINDINGS FROM THE ADVERSE CHILDHOOD EXPERIENCES STUDYJAMA. 2001;286(24):3089-3096. DOI:10.1001/JAMA.286.24.3089

Table 4. Relationship of the Adverse Childhood Experiences (ACE) Score to Having Attempted Suicide During Childhood/Adolescence or Adulthood*

	Child/Adolescent		Adult	
ACE Score†	No. (%)‡	Odds Ratio (95% CI)	No. (%)	Odds Ratio (95% CI)
0 (3100)	5 (0.2)	1.0	24 (0.8)	1.0
1 (2280)	6 (0.3)	1.4 (0.4-4.6)	40 (1.8)	2.3 (1.4-3.8)
2 (1358)	17 (1.3)	6.3 (2.3-17.3)	33 (2.4)	3.1 (1.8-5.2)
3 (n = 821)	16 (1.9)	8.5 (3.1-23.5)	23 (2.8)	3.4 (1.9-6.0)
4 (n = 521)	15 (2.9)	11.9 (4.3-33.3)	17 (3.3)	3.8 (2.0-7.1)
5 (n = 313)	12 (3.8)	15.7 (5.4-45.3)	29 (9.3)	11.2 (6.4-19.8)
6 (n = 149)	12 (8.1)	28.9 (9.8-85.1)	17 (11.4)	13.2 (6.8-25.7)
≥7 (n = 87)	12 (13.8)	50.7 (17.0-151.4)	20 (23.0)	29.8 (15.3-57.9)
Total (n = 8629)	95 (1.1)		203 (2.4)	

*Odds ratio adjusted for sex, race, educa[illegible]al level, and age at survey. CI indicates confider[illegible]nterval.
†The trend for increasing risk of attempt[illegible]uicide at all levels of the ACE score is significant ([illegible]002) for both groups.
‡From wave 2 only, n = 8629.

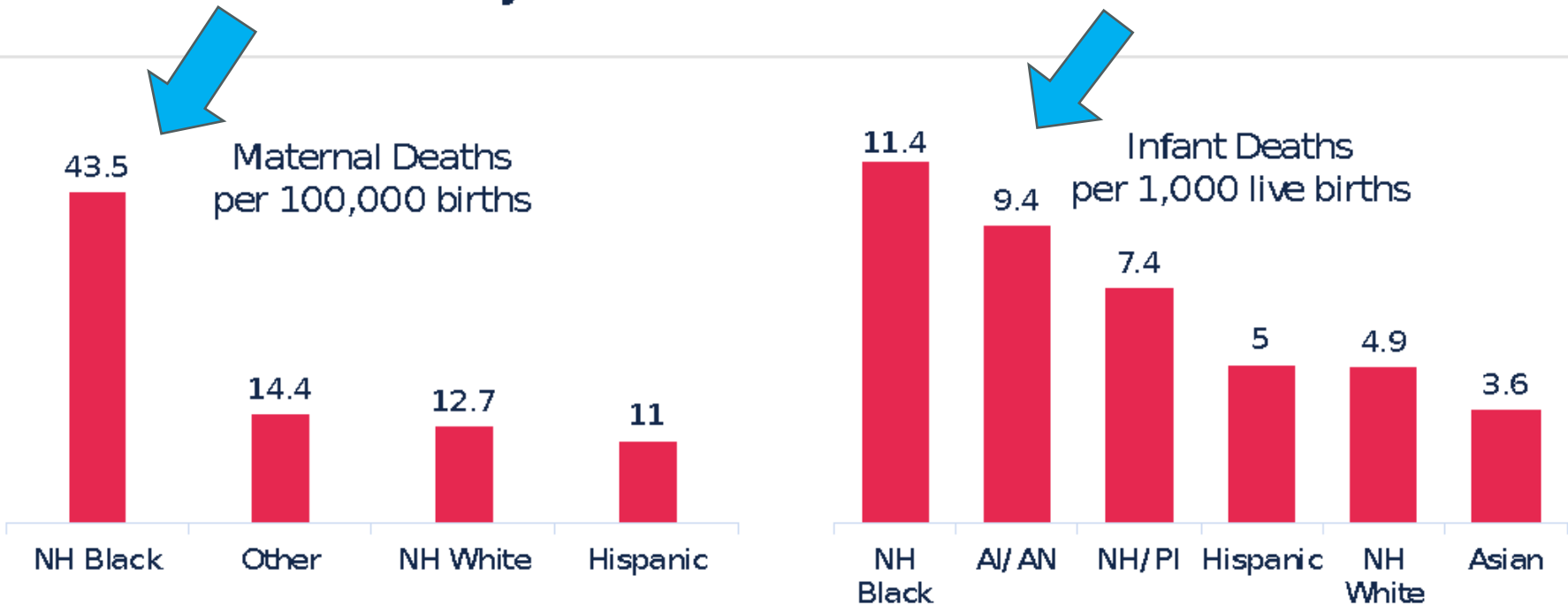
Maternal Suicide

Psychiatric disorders are associated with an elevated risk of maternal mortality from suicide,
which was responsible for 20% of deaths during pregnancy or the first year postpartum.

An American study from Colorado found that deaths related to psychiatric disease were the eighth most common cause of maternal death, more common than hemorrhage or complications of anesthesia, and when combined with drug overdose they were the leading cause of maternal mortality.

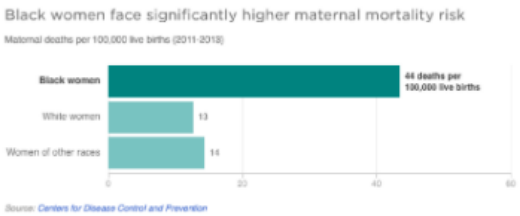
Most suicides in the postpartum period occurred between 9 and 12 months postpartum and that the perinatal suicides were by highly lethal means (such as via firearm), suggesting that limiting follow up to 1, 3 or 6 months postpartum is insufficient. Intimate partner violence in half of the postpartum mothers who died by suicide.

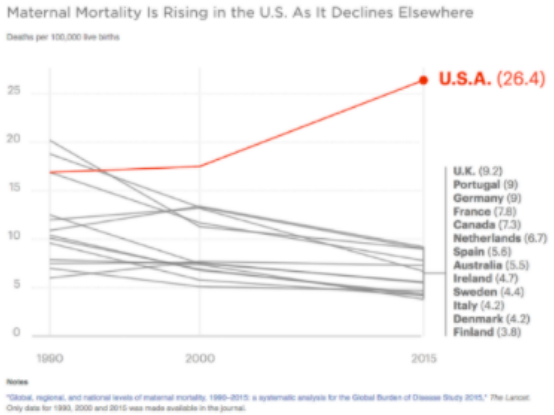
Perinatal mortality in the United States



Creanga, A. A., et al. (2017). Obstet Gynecol 130(2): 366-373; CDC Infant Mortality 2016

Black mothers are 3 to 4 x more likely to die in pregnancy than White mothers





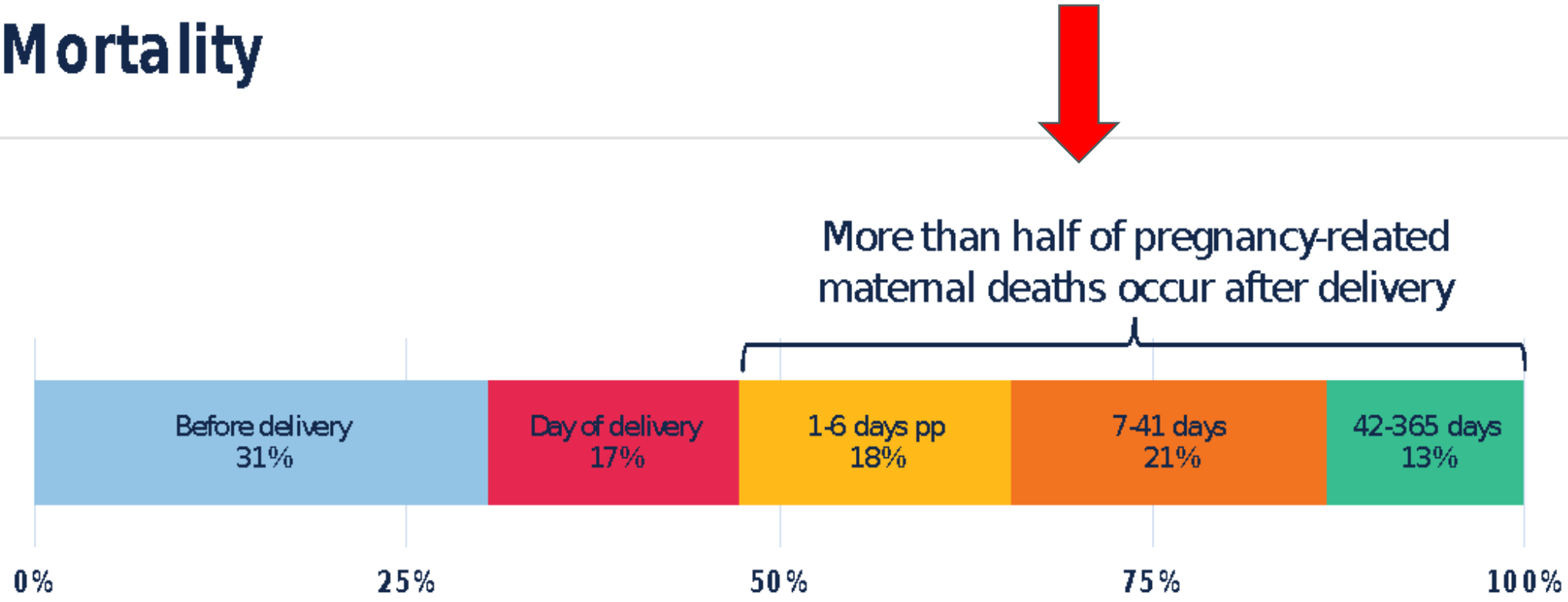
Black babies are twice as likely to die than White babies in the first year

- Black women with advanced degrees are more likely to have a baby die than a white woman with less than an 8th grade education

Education and poverty do not explain the gap in infant mortality

https://www.brookings.edu/research/time-for-justice-tackling-race-inequalities-in-health-and-housing/#_edn8

Mortality



Pregnancy-Related Mortality in the United States, 2011-2013. https://www.ncbi.nlm.nih.gov/pubmed/28697109

Admissions to a Psychiatric Hospital: 2 Years Pre- and Post-Delivery

Kendell RE et al. Br J Psychiatry. 1987; 150: 662-673.

4th Trimester Project

-Shift cultural norms and assumptions

-Actively support health goals of all mothers and families

-Better prepare health care professionals to care for families

-Establish more equitable health care systems

-Help build 'villages' of support and resources

-Lift up the experiences of all women, with special attention to centering women of color and others whose opinions and perspectives have often been overlooked or ignored.

https://newmomhealth.com

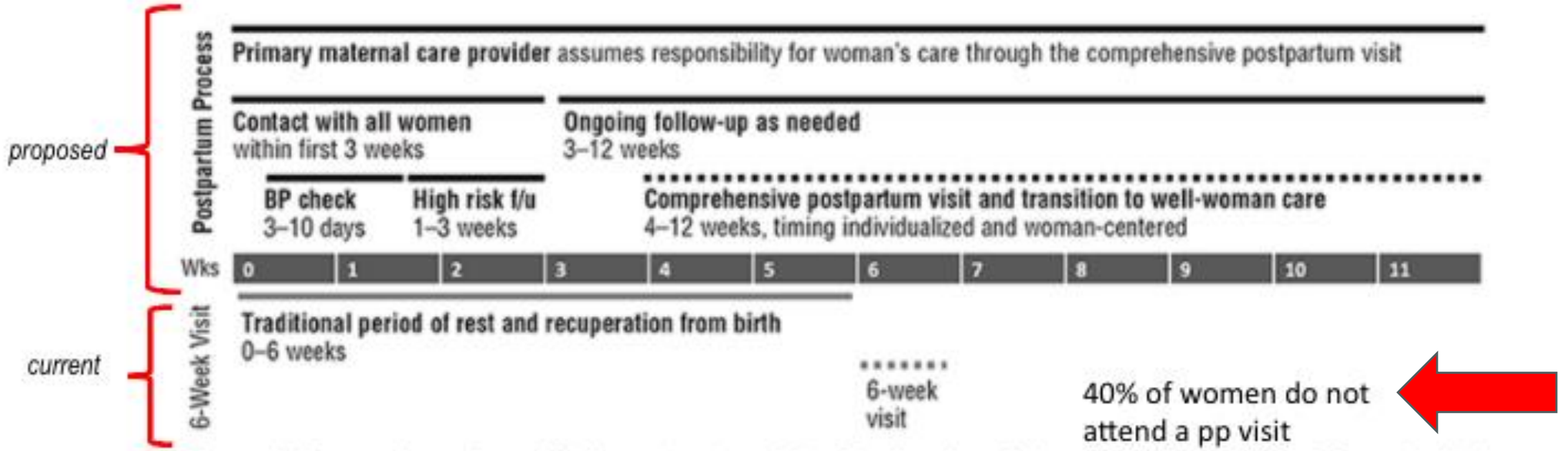


Figure 1. Proposed paradigm shift for postpartum visits. The American College of Obstetricians and Gynecologists' Presidential Task Force on Redefining the Postpartum Visit and the Committee on Obstetric Practice propose shifting the paradigm for postpartum care from a single 6-week visit (bottom) to a postpartum process (top). Abbreviations: BP, blood pressure; f/u, follow-up.

ACOG Presidential Task Force on Redefining the Postpartum Visit, May 2018

EDITORIAL

Finding new solutions for racial health gaps

With help from Blue Cross, the U will be at forefront in addressing troubling health disparities.

By EDITORIAL BOARD, Star Tribune | MARCH 21, 2021 — 6:00PM

A painful but pioneering infant mortality study is a challenge we "can't walk away from," as Minnesota DFL Rep. Kelly Morrison, who's also a physician, aptly put it during a recent legislative briefing.

Black babies in the U.S. have long been at much higher risk of dying than white newborns. But a study from a team that included two University of Minnesota researchers yielded a stunning finding: The hospital death rate for Black infants drops by a third when a Black doctor cared for them during the critical period after delivery. The study garnered national headlines last year and appeared in one of the world's most prestigious scientific journals — and rightfully so. The distressing differences in infant mortality have long been a shameful public health crisis. The findings provide a groundbreaking perspective on the roots of this racial gap and should drive innovation to close it.

The work to do this is just beginning, but a timely $5 million donation will ensure that it will continue. Blue Cross Blue Shield of Minnesota has commendably provided a sizable gift to establish the Center for Antiracism Research for Health Equity at the U's School for Public Health.

Rachel Hardeman, an associate U professor renowned for her research on reproductive health equity, will lead this new center. Along with the U's Aaron Sojourner, she was one of four authors on the study linking Black infants' health to having a Black doctor. The study yielded critical questions that still need to be answered about why the provider's race matters.

CREDIT: STEPHEN MATUREN/GETTY

News Release

The U of M School of Public Health received a $5 million philanthropic gift from Blue Cross and Blue Shield of Minnesota to establish the Center for Antiracism Research for Health Equity

February 24, 2021

News and Events

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"In 2020, we saw Minnesota become a national epicenter for racial injustice, under some of the most tragic and heartbreaking conditions imaginable," said Craig Samitt, president and chief executive officer at Blue Cross and Blue Shield of Minnesota. "In order to transform our state, inspire change and improve health, we can't just say the right things – we must do the right things. We believe that Blue Cross' investment in the creation of the Center for Antiracism Research for Health Equity will serve as a catalyst to advance health equity and dismantle racism from the structure and fabric of our society."

PACEs Connection

formerly ACEs Connection

HEAL trauma

BUILD resilience

PREVENT ACEs

JOIN the movement

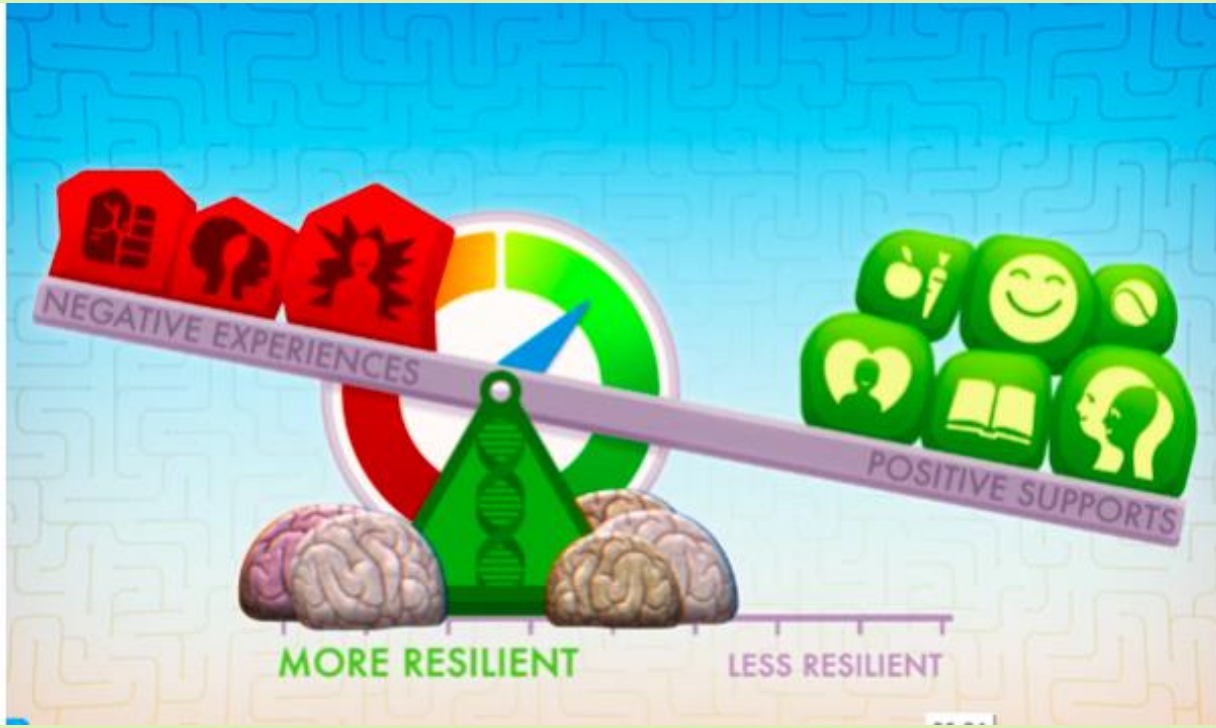
PACEs = Positive & Adverse Childhood Experiences

TED Ideas worth spreading WATCH DISCOVER ATTEND PARTICIPATE

Details About the talk | Transcript 31 languages | Reading List Further learning

Childhood trauma isn't something you just get over as you grow up. Pediatrician Nadine Burke Harris explains that the repeated stress of abuse, neglect and

8,324,287 views



Center on the Developing Child
HARVARD UNIVERSITY

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Key Concepts

Serve and Return

Content in This Guide

Part 1: What is "Serve and Return"?

- **You Are Here:** Intro to Serve & Return
- Young Children Develop in an Environment of Relationships
- Video: Serve & Return Shapes Brain Circuitry

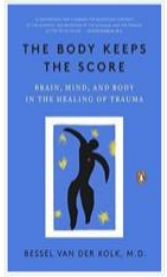
Part 2: How Do I "Serve and Return"?

Serve and return interactions shape brain architecture. When an infant or young child babbles, gestures, or cries, and an adult responds appropriately with eye contact, words, or a hug, neural connections are built and strengthened in the child's brain that support the development of communication and social skills. Much like a lively game of tennis, volleyball, or Ping-Pong, this back-and-forth is both fun and capacity-building. When caregivers are sensitive and responsive to a young

This how-to video breaks down serve and return into **5 simple steps** and features adults and young children doing each step together.

Stillface=Toxic Stress

BESSEL VAN DER KOLK M.D. Home Schedule Scientific Publications + How to Contact + Mor



"Being able to feel safe with other people is probably the single most important aspect of mental health; safe connections are fundamental to meaningful and satisfying lives."

"Neuroscience research shows that the only way we can change the way we feel is by becoming aware of our inner experience and learning to befriend what is going on inside ourselves."

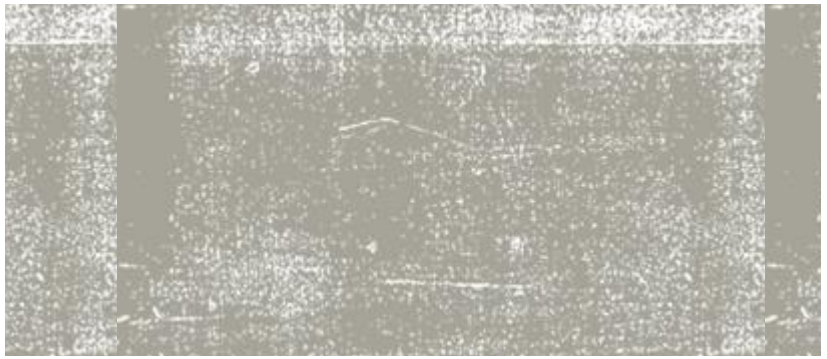


TABLE 1

Developmental Trauma Disorder

A. Exposure
- Multiple or chronic exposure to one or more forms of developmentally adverse interpersonal trauma (eg, abandonment, betrayal, physical assaults, sexual assaults, threats to bodily integrity, coercive practices, emotional abuse, witnessing violence and death).
- Subjective experience (eg, rage, betrayal, fear, resignation, defeat, shame).

B. Triggered pattern of repeated dysregulation in response to trauma cues

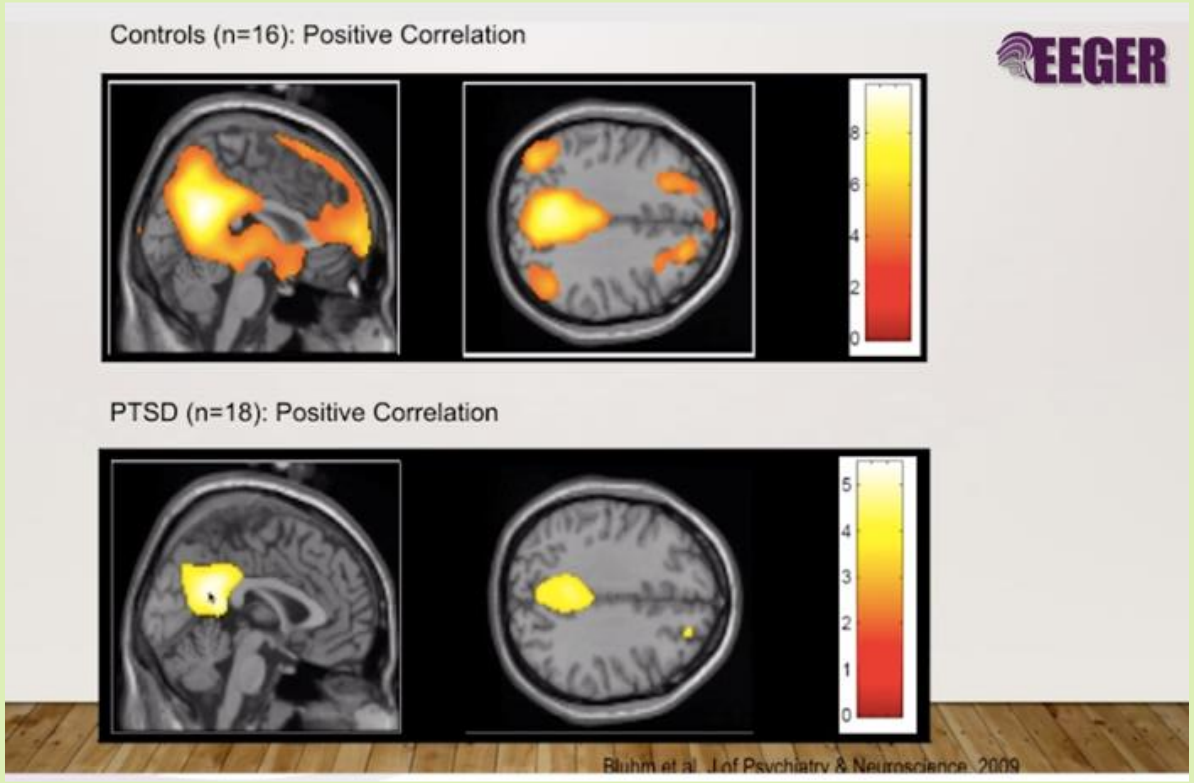
Dysregulation (high or low) in presence of cues. Changes persist and do not return to baseline; not reduced in intensity by conscious awareness.
- Affective
- Somatic (eg, physiological, motoric, medical)
- Behavioral (eg, re-enactment, cutting)
- Cognitive (eg, thinking that it is happening again, confusion, dissociation, depersonalization).
- Relational (eg, clinging, oppositional, distrustful, compliant).
- Self-attribution (eg, self-hate, blame).

C. Persistently Altered Attributions and Expectancies
- Negative self-attribution.
- Distrust of protective caretaker.
- Loss of expectancy of protection by others.
- Loss of trust in social agencies to protect.
- Lack of recourse to social justice/retribution.
- Inevitability of future victimization.

D. Functional Impairment
- Educational.
- Familial.
- Peer.
- Legal.
- Vocational.

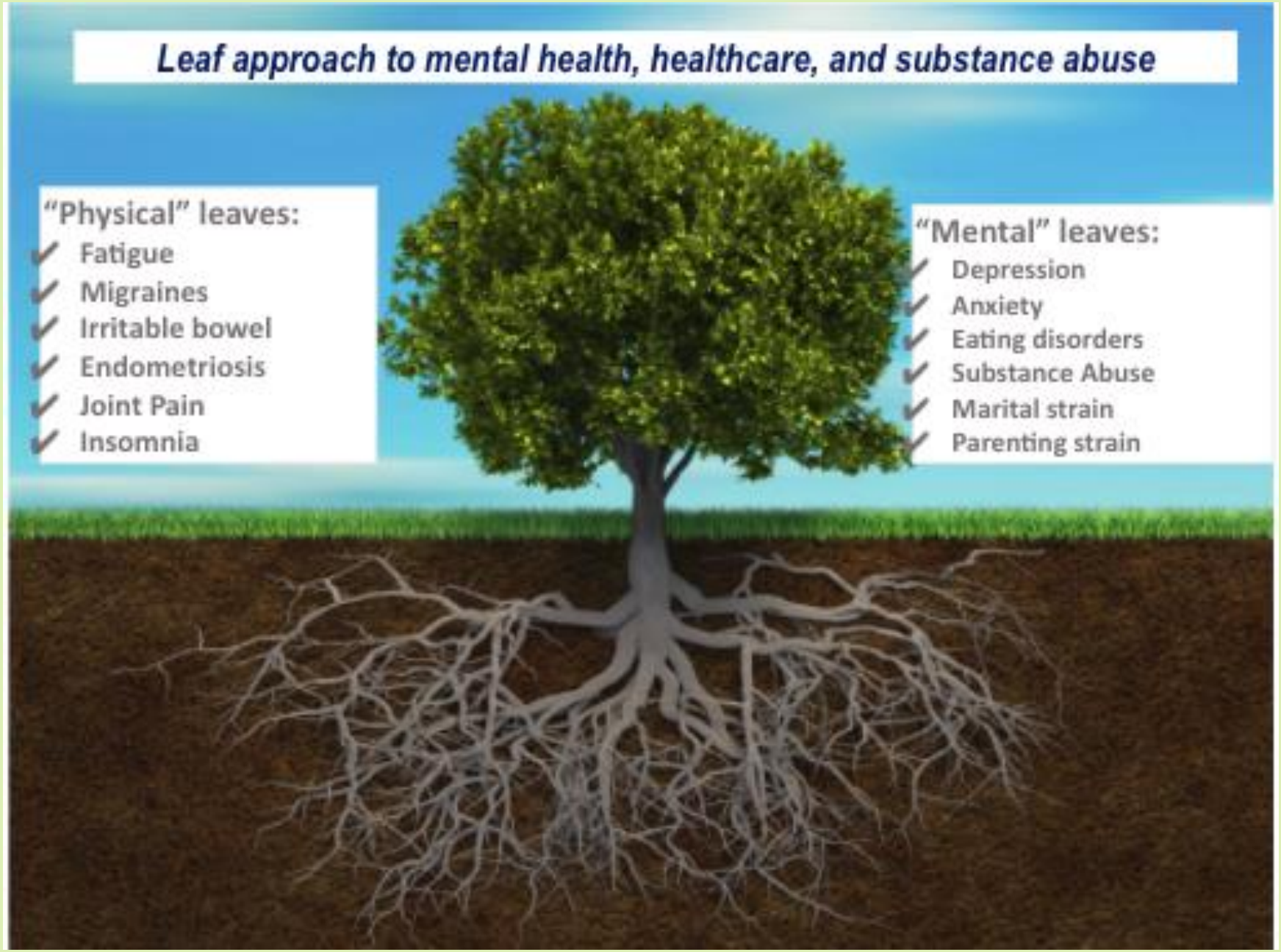
Developmental Trauma Disorder

B Van der Kolk "what we see most of in our offices is from interpersonal trauma"

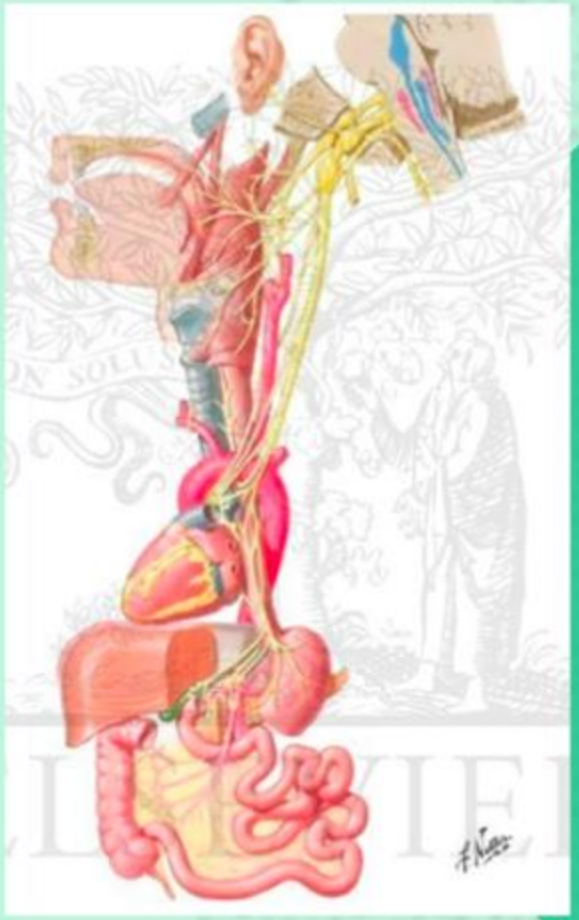


SENSE OF SELF AND OTHER, PERSONAL NARRATIVE: developmental trauma *IS* brain damage

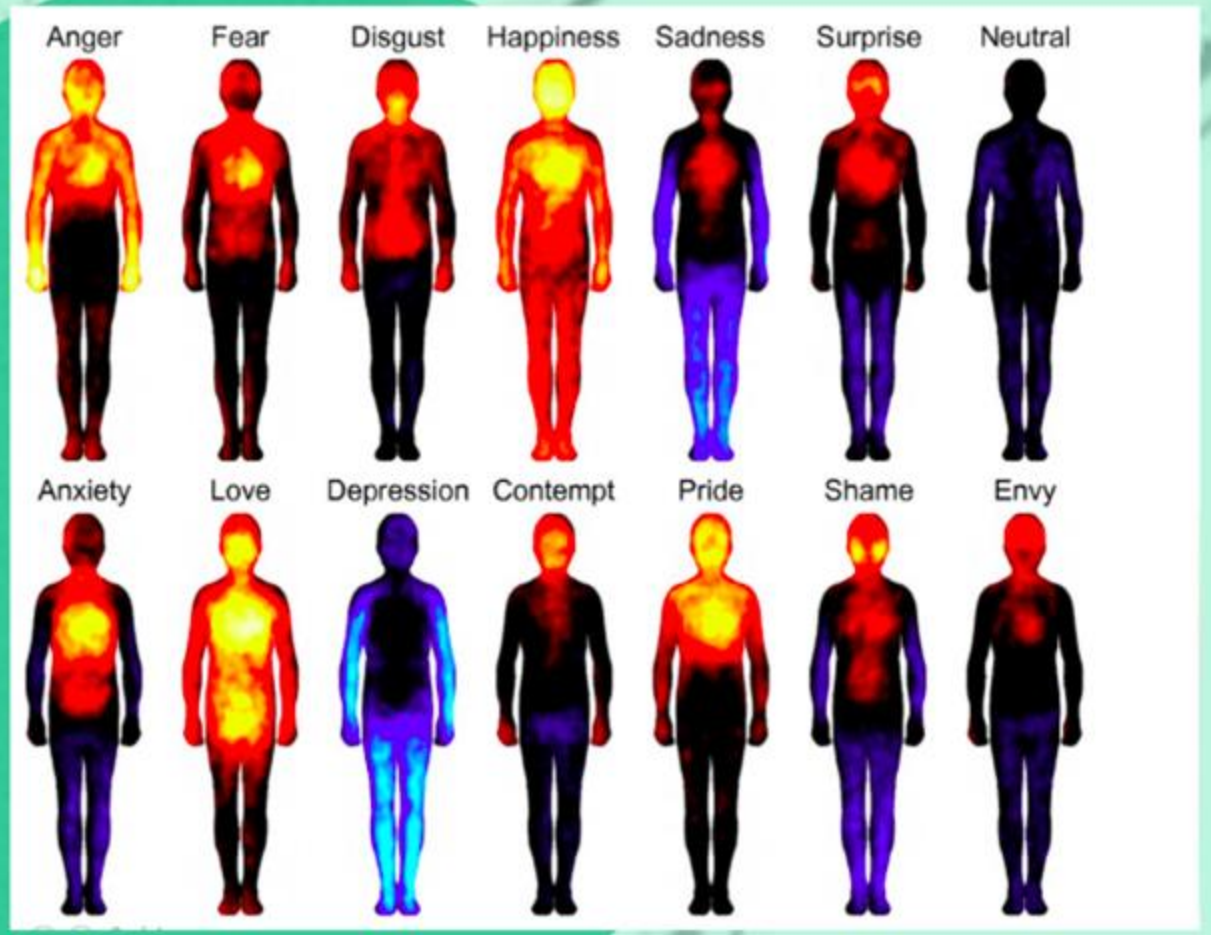
- "the default mode network
- is the major resting network
- of the brain"
- -R. Lanius


Leaf approach to mental health, healthcare, and substance abuse
"Physical" leaves:
Fatigue
Migraines
Irritable bowel
Endometriosis
Joint Pain
Insomnia
"Mental" leaves:
Depression
Anxiety
Eating disorders
Substance Abuse
Marital strain
Parenting strain

EMOTIONS ARE PHYSICAL

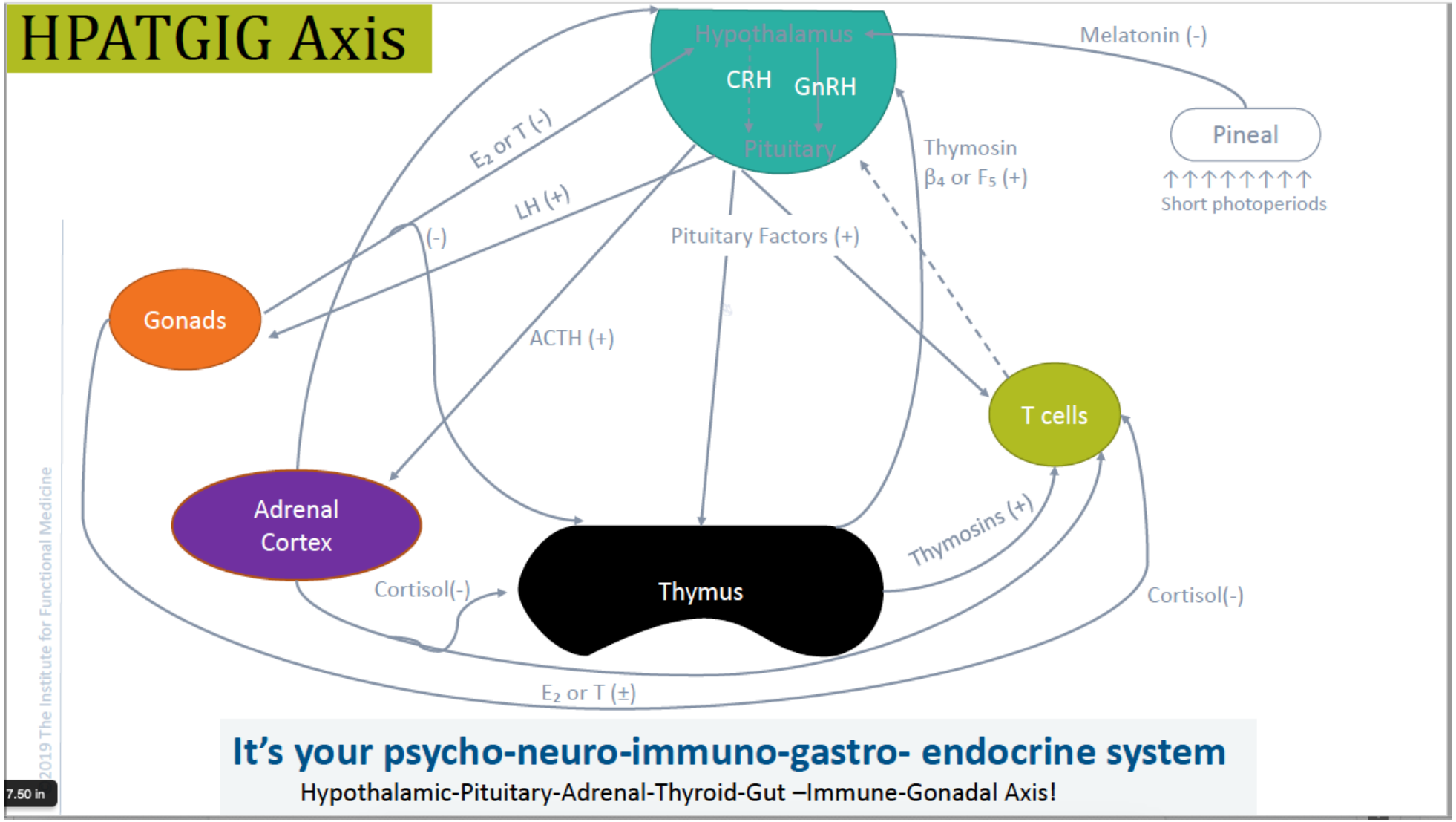


Vagus Nerve



PNAS 2014

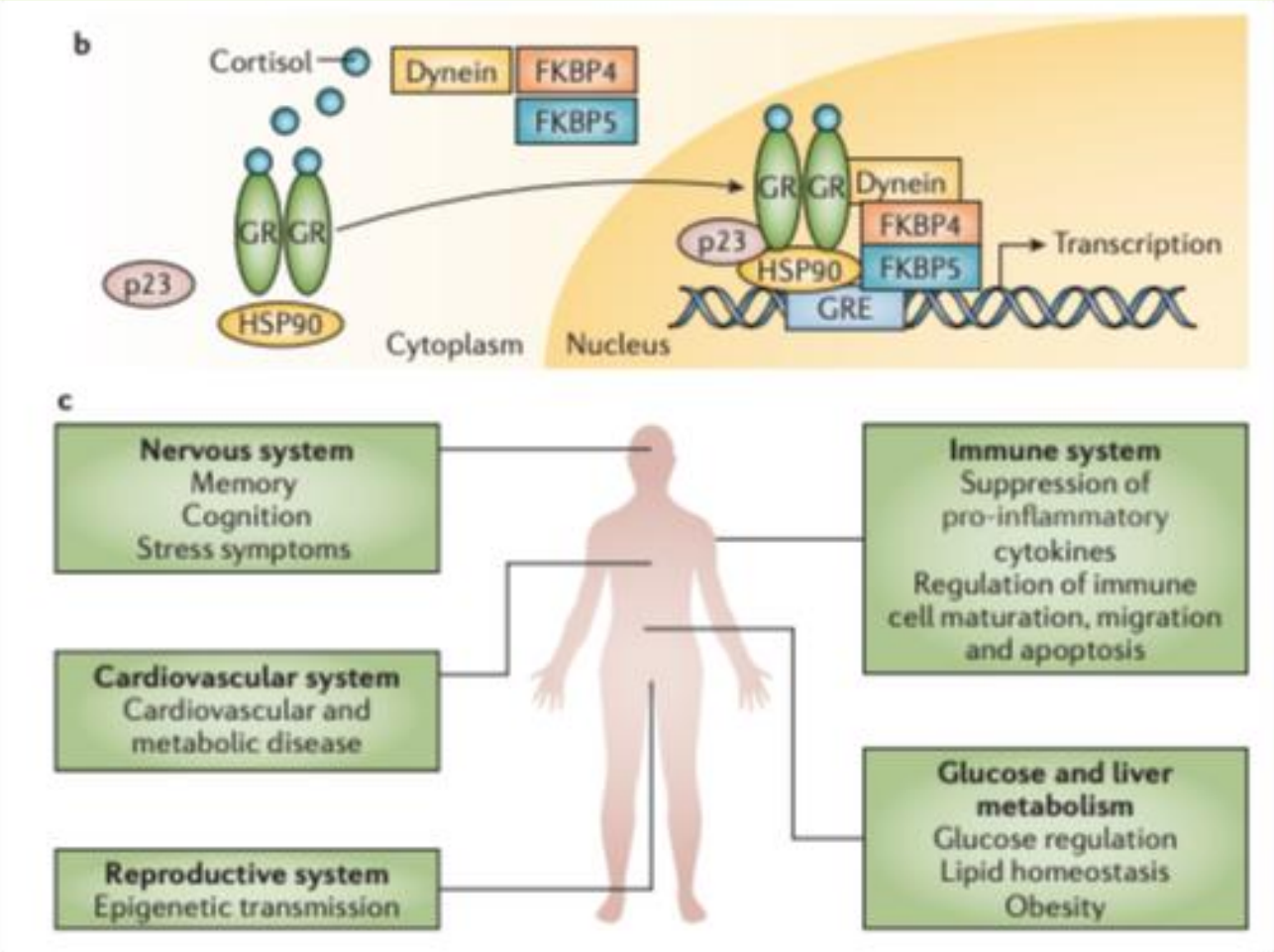
HPATGIG Axis

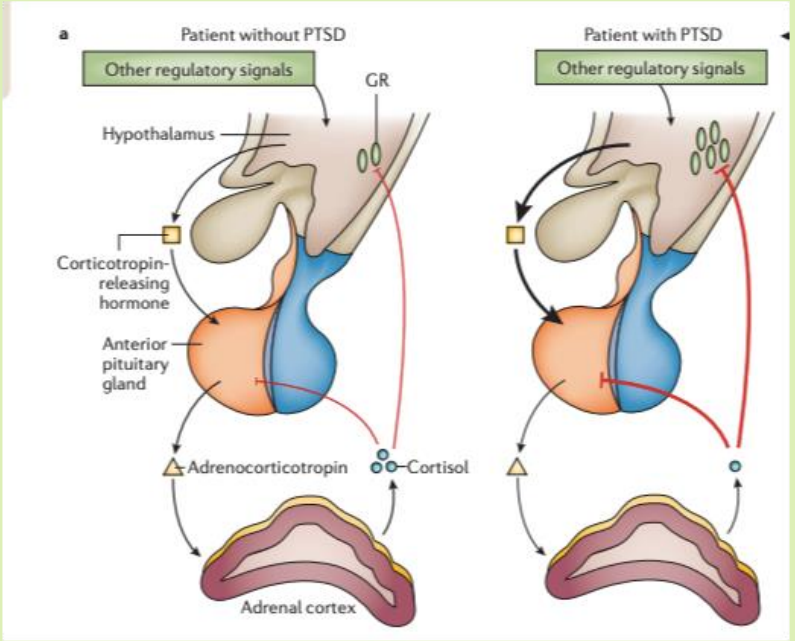


It's your psycho-neuro-immuno-gastro- endocrine system

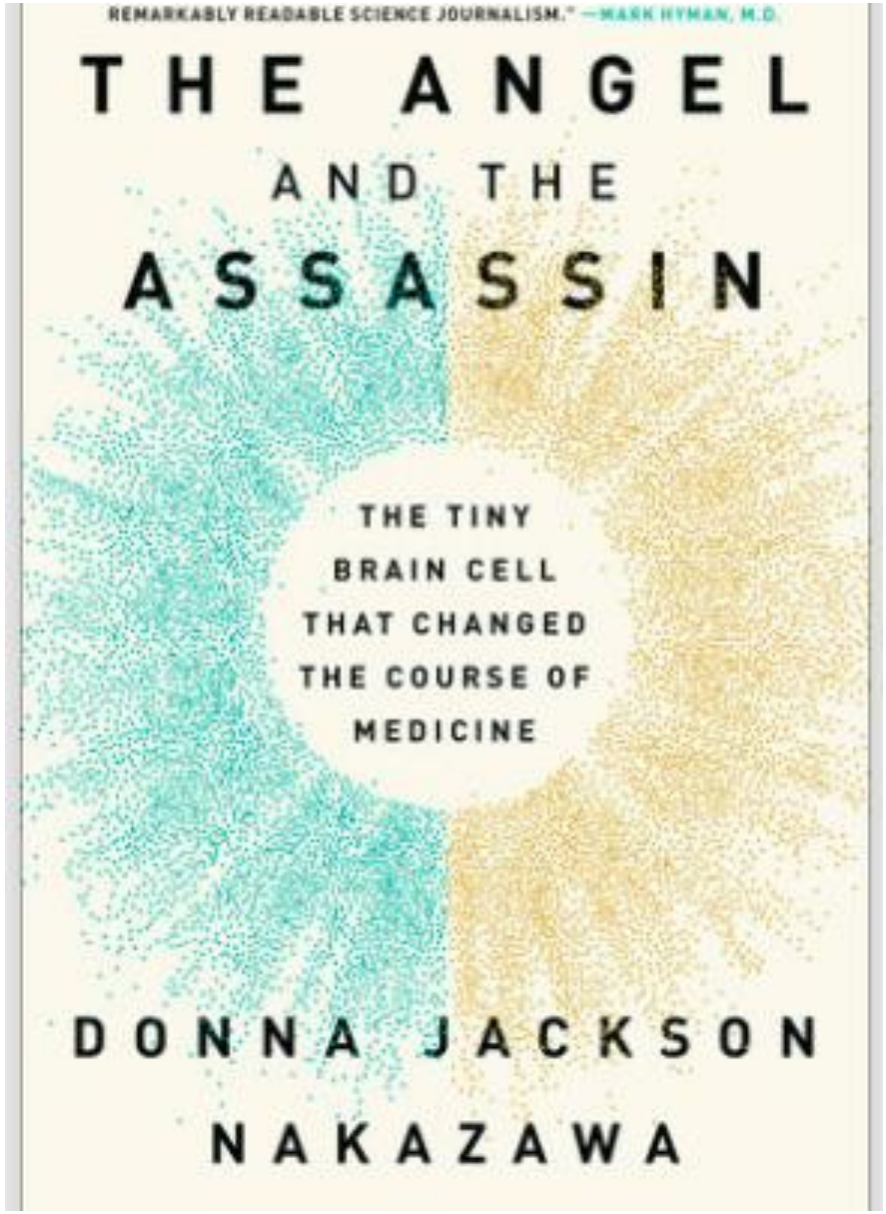
Hypothalamic-Pituitary-Adrenal-Thyroid-Gut –Immune-Gonadal Axis!

Body-Brain stress and PTSD





Yehuda et al. 2015



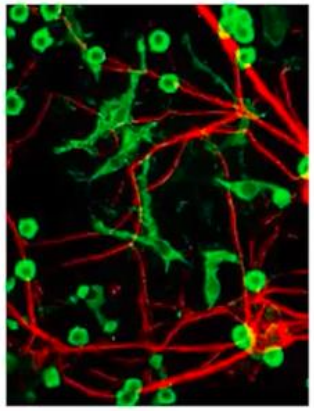
ACEs (Without Intervention) Predict Health Outcomes

- → 3 or more categories of ACEs:
  - ◆ 60% increased risk of autoimmune disease (lupus, multiple sclerosis, RA, type 1 diabetes)
- → 4 or more categories of ACEs
  - ◆ 2.5x more likely to be diagnosed with cancer, lung disease
  - ◆ 4.5x more likely to face depression, Alzheimer's
  - ◆ 12x more likely to attempt suicide
- → 6 or more categories of ACEs shortens individual's lifespan by 20 years

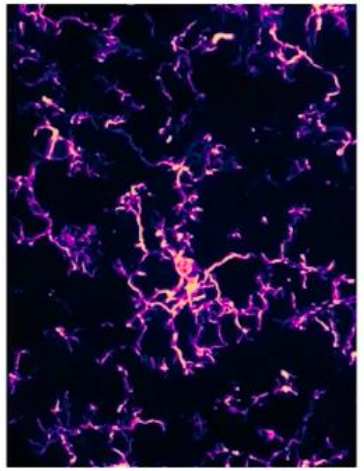
What Was Causing Health Concerns in Adults Who Faced Early Adversity?

- → Were these individuals simply more likely to have poor health habits?
- → People with an ACE Score of 7 or more **who didn't drink or smoke, weren't overweight or diabetic, and didn't have high cholesterol** ***still*** had a **360% higher risk of heart disease**.

Microglia: The Powerhouse Cell that Links our Physical and Mental Health



- Microglia: long thought to be a boring "housekeeper" cell that simply carts away dead neurons.
- Recent discovery: microglia are immune cells and **function as the white blood cells of the brain.**
- Microglia are easily activated by stressors!
- When microglia detect a threat – toxic stress, emotional trauma, pathogens, infections – microglia can morph into "Pac Man-like cells" and eat away at and destroy even healthy synapses, and change neural pathways.
- Biological basis of mind-body connection.



- **When triggered by chronic stressors, microglia can destroy *necessary* synapses.**
- Too much pruning – not enough connectivity – can result in neuropsychiatric disorders years later.
- In healthy, nurturing environments, microglia are **Angels** of the brain (secrete nutrients to stimulate healthy neurons to grow, create new synapses, strengthen brain connectivity).
- **In unhealthy or toxic environments, microglia are brain's untimely Assassins.**
- **For nearly a century science missed the power, peril, and promise of this tiny brain cell.**

Reproductive hormones

- Vulnerability to shifts in reproductive hormones in pregnancy and childbirth
- Estrogen and progesterone receptors throughout the brain and can modulate genomic and non-genomic mechanisms
- Allopregnenolone GABA(alpha) receptors
- Distinct neurobiological patterns of mothers with PPD on fMRI
- Alterations in HPA axis during pregnancy such as CRH release by placenta
- First-onset postpartum thyroid autoimmune disorders often coincide with postpartum mood disorders
- Markers of inflammation associated with postpartum mood disorders, e.g. IL-6
- First pregnancies are more often linked to postpartum disorders, including postpartum psychosis and preeclampsia, suggesting a common etiology of psycho-neuro-immune dysregulation

nature neuroscience

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Article | Published: 09 April 2018

Maternal IL-6 during pregnancy can be estimated from newborn brain connectivity and predicts future working memory in offspring

Marc D. Rudolph, Alice M. Graham, Eric Feczko, Oscar Miranda-Dominguez, Jerod M. Rasmussen, Rahel Nardos, Sonja Entringer, Pathik D. Wadhwa, Claudia Buss & Damien A. Fair

Nature Neuroscience **21**, 765–772(2018) | Cite this article

3291 Accesses | **92** Citations | **280** Altmetric | Metrics

Abstract

Several lines of evidence support the link between maternal inflammation during pregnancy and increased likelihood of neurodevelopmental and psychiatric disorders in

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SUPPLEMENT ARTICLE

Neurodevelopment: The Impact of Nutrition and Inflammation During Infancy in Low-Resource Settings

Nancy F. Krebs, Betsy Lozoff and Michael K. Georgieff

Pediatrics April 2017, 139 (Supplement 1) S50-S58; DOI: https://doi.org/10.1542/peds.2016-2828G

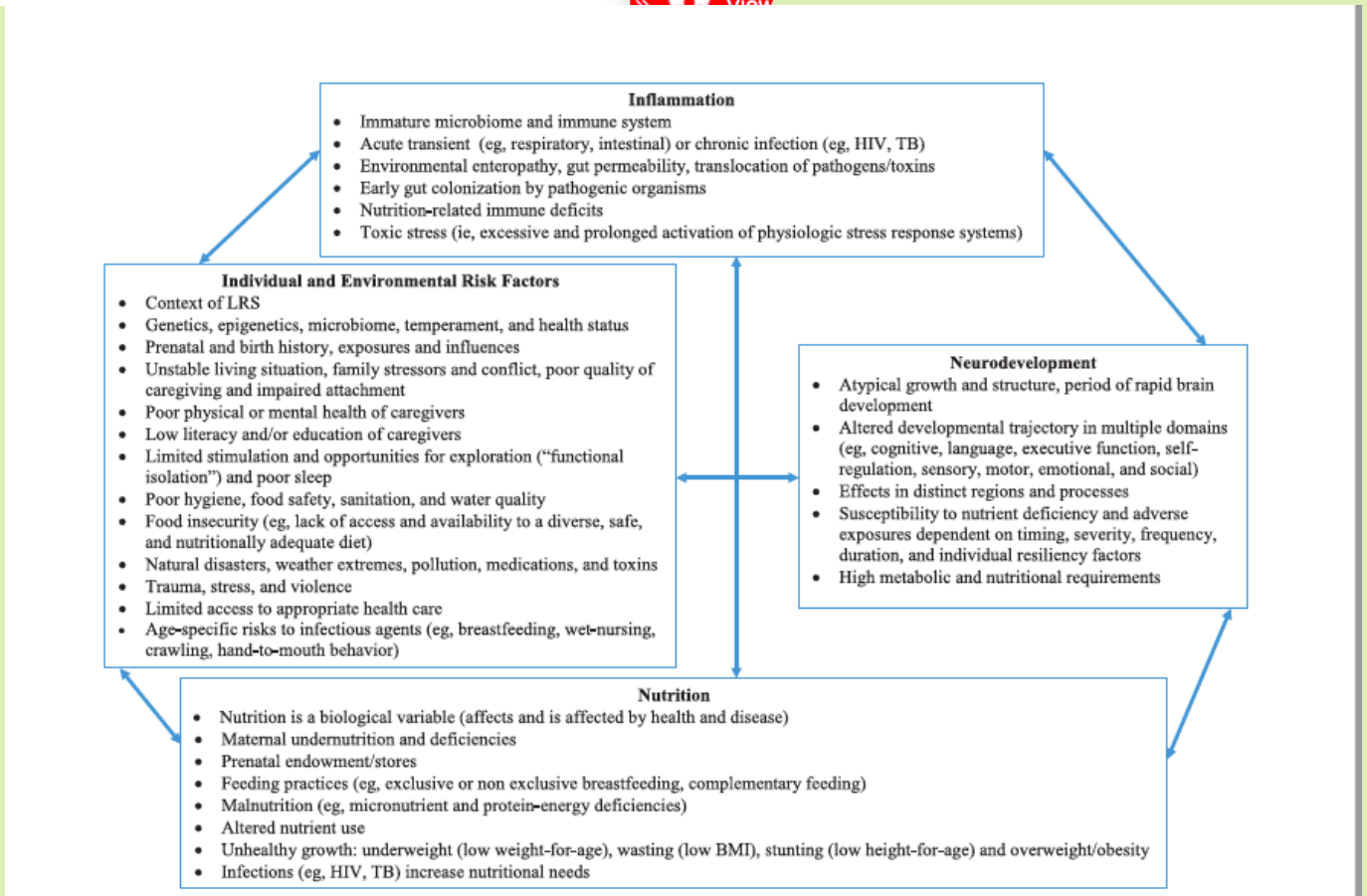
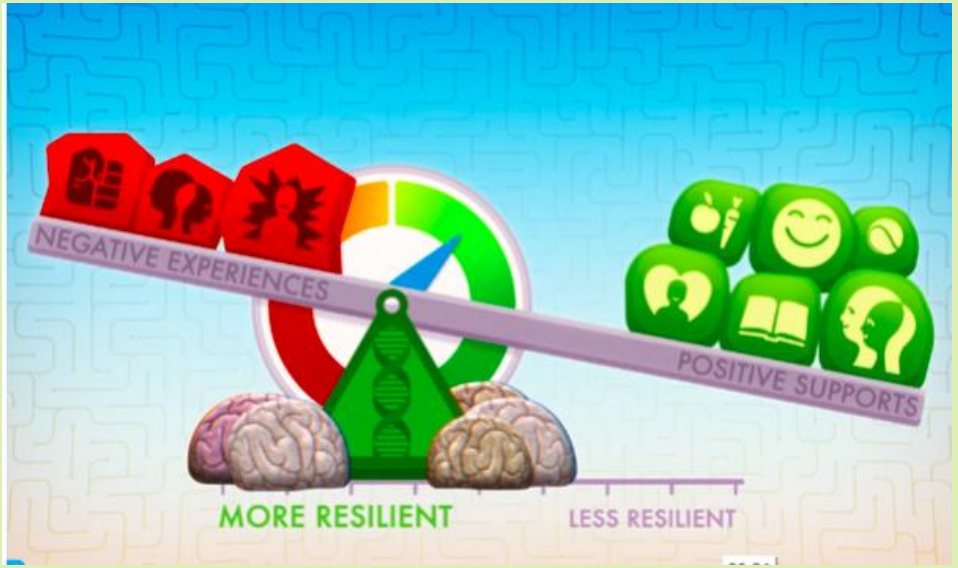


FIGURE 1
Relationships among individual and environmental risk factors, inflammation, nutrition, and neurodevelopment for infants in LRS. TB, tuberculosis.

Resiliency findings/PACES

- Positive Childhood Experiences Score The PCEs score included 7 items asking respondents to report how often or how much as a child they: (1) felt able to talk to their family about feelings; (2) felt their family stood by them during difficult times; (3) enjoyed participating in community traditions; (4) felt a sense of belonging in high school (not including those who did not attend school or were home schooled); (5) felt supported by friends; (6) had at least 2 nonparent adults who took genuine interest in them; and (7) felt safe and protected by an adult in their home.



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March 22, 2006, Vol 295, No. 12 >

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Original Contribution | March 22/29, 2006

Remissions in Maternal Depression and Child Psychopathology

A STAR*D-Child Report FREE

Myrna M. Weissman, PhD; Daniel J. Pilowsky, MD, MPH; Priya J. Wickramaratne, PhD; Ardesheer Talati, PhD; Stephen R. Wisniewski, PhD; Maurizio Fava, MD; Carroll W. Hughes, PhD; Judy Garber, PhD; Erin Malloy, MD; Cheryl A. King, PhD; Gabrielle Cerda, MD; A. Bela Sood, MD; Jonathan E. Alpert, MD, PhD; Madhukar H. Trivedi, MD; A. John Rush, MD; for the STAR*D-Child Team

[+] Author Affiliations

JAMA. 20

Results Remission of maternal depression after 3 months of medication treatment was significantly associated with reductions in the children's diagnoses and symptoms. There was an overall 11% decrease in rates of diagnoses in children of mothers whose depression remitted compared with an approximate 8% increase in rates of diagnoses in children of mothers whose depression did not. This rate difference remained statistically significant after controlling for the child's age and sex, and possible confounding

Perinatal Mood and Anxiety Disorders are common, undertreated, and costly

60% of women with postpartum depression do not seek help

The U.S. Preventive Services Task Force, the American College of Obstetricians and Gynecologists, and the American Academy of Pediatrics all recommend to screen for depression during the perinatal period. The Council on Patient Safety in Women's Health Care (www.safehealthcareforeverywoman.org) created a practice bundle

Societal Costs of Untreated Perinatal Mood and Anxiety Disorders in the United States, Mathematica 2019

THE PRIMAL SCREAM

How Society Has Turned Its Back on Mothers

This isn't just about burnout, it's about betrayal.

Clinical Psychiatry News

Commentary

A SEAT AT THE TABLE

Why it's time for women's mental health to be recognized as the subspecialty it already is

NAVIGATING A 'TIDAL WAVE'

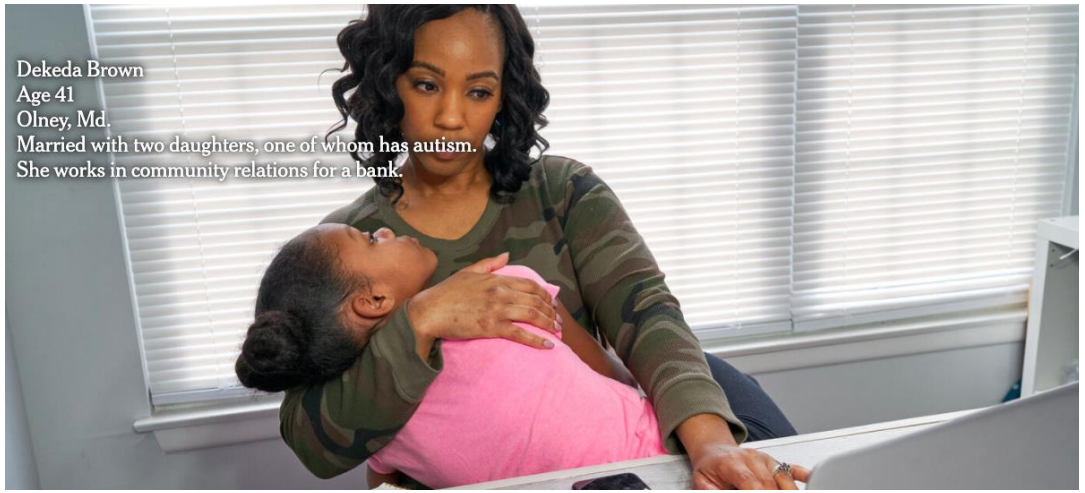
Women psychiatrists struggle to balance work-life demands during COVID-19

COVID-19

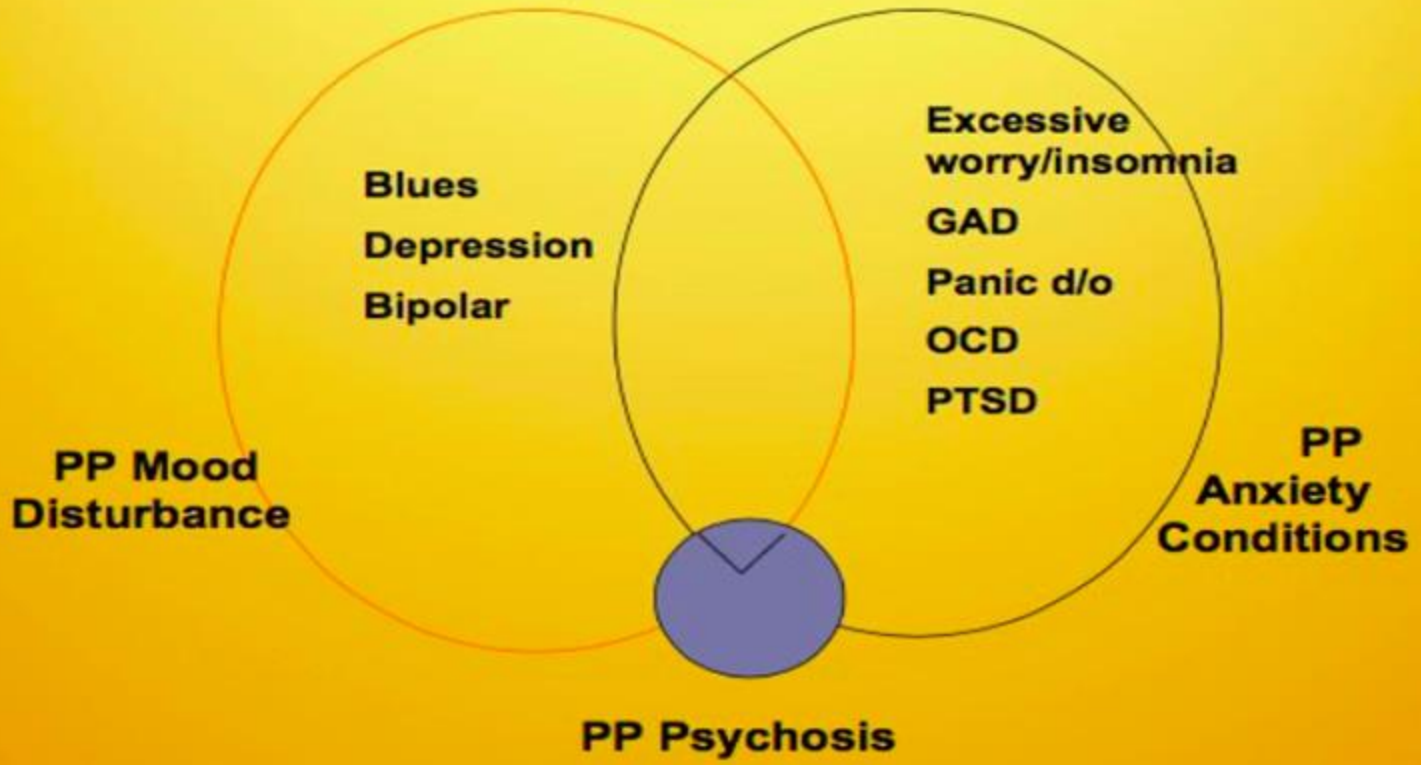
THIS IS A PRIMAL SCREAM

It's not just the working from home, the record unemployment or the remote schooling. This is a mental health crisis, too.

By Jessica Grose



Postpartum Mood and Anxiety Spectrum



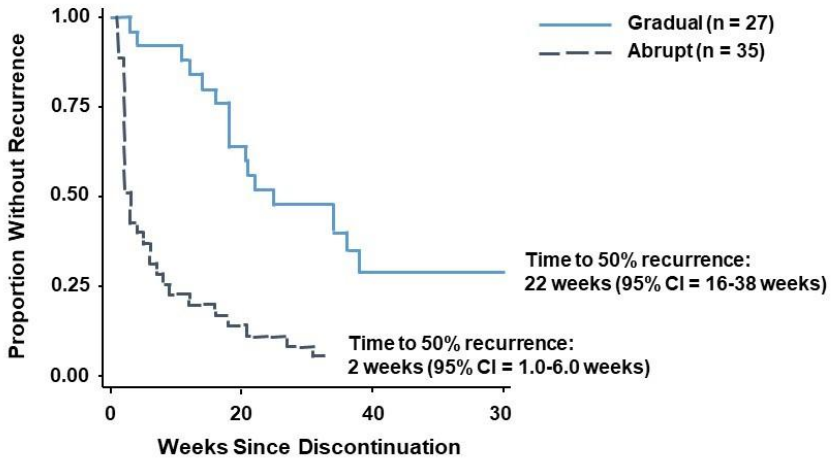
Postpartum psychiatric disorders

- Epidemiology Pregnancy
  - 11% for depressive disorders and 15% for anxiety disorders.
- Epidemiology Postpartum (point prevalence):
  - depression disorder 12-20%
  - anxiety disorder 12%
- These disorders should not be confused with the so-called Baby Blues, which are usually described as transient, mild mood and anxiety symptoms that often persist for ≤2 weeks and usually resolve spontaneously with no sequelae
- Further, antenatal anxiety and depression are two of the greatest risk factors for PPDs. Inadequate social support and a history of adverse life events increase the risk of PPDs

Postpartum Disorders: Overview

- Biological factors might have greater role in postpartum bipolar illness whereas psychosocial risk factors might play greater role in depressive disorders
- Continuing medication is protective in only a subset of postpartum women and discontinuing medication does not guarantee that women will relapse
- PPD is often a trigger for onset of a chronic major depressive disorder, with almost 1 in 3 women continuing to struggle with depressive symptoms at least 4 years after delivery.

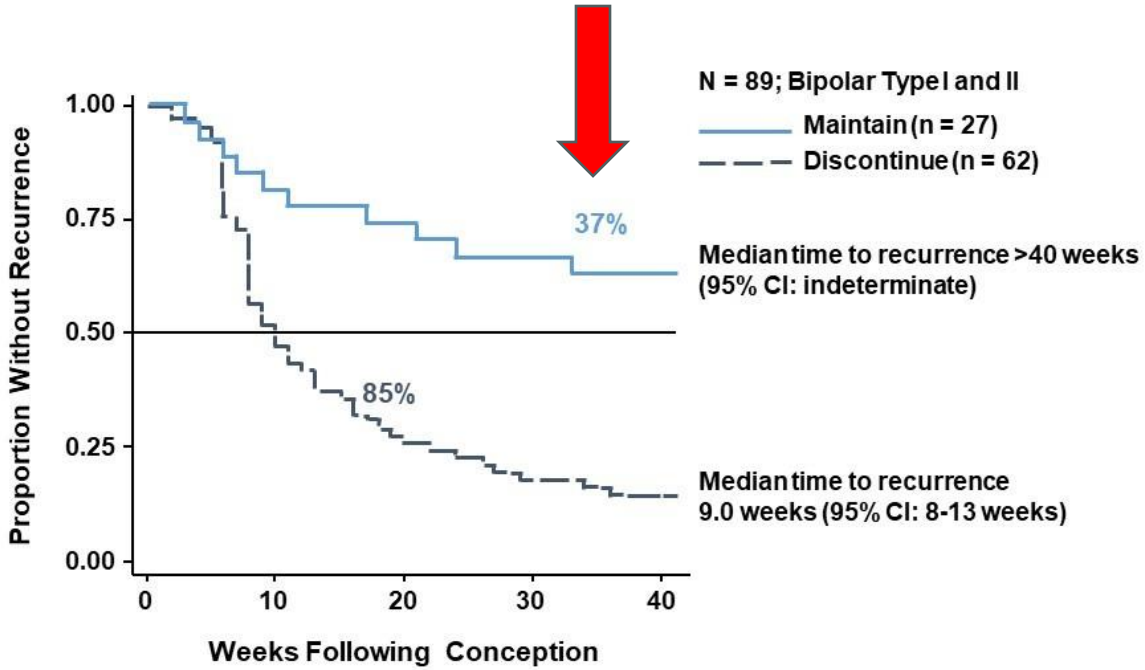
Rapid vs. Gradual Discontinuation



CANMAT

Viguera et al. *Am J Psychiatry* 2007;164:1817-24

Risk of Recurrence in Pregnant Women with Bipolar Disorder who Continued vs Discontinued *any* Mood Stabilizer



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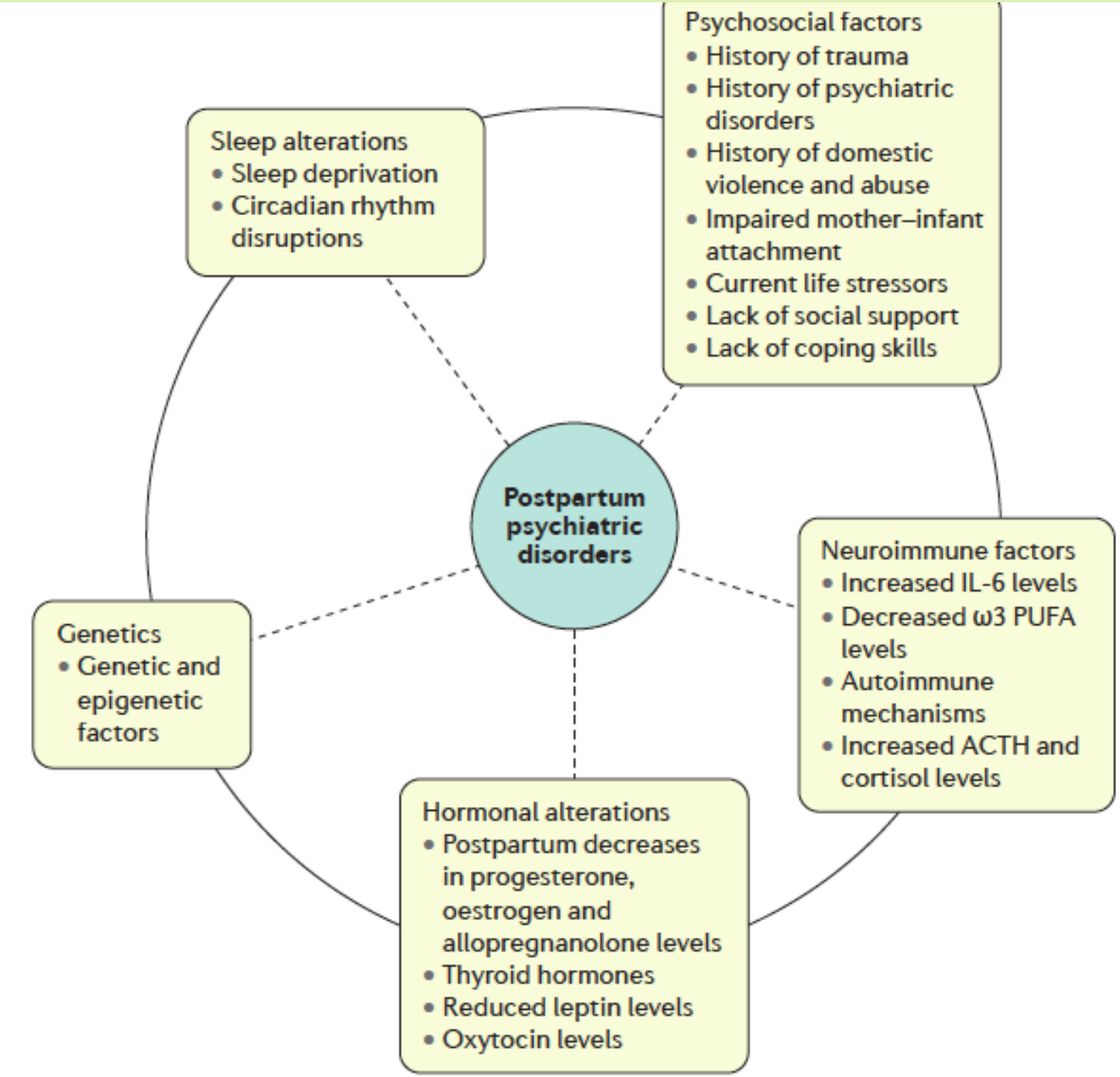
Viguera et al. *Am J Psychiatry* 2007;164:1817-24

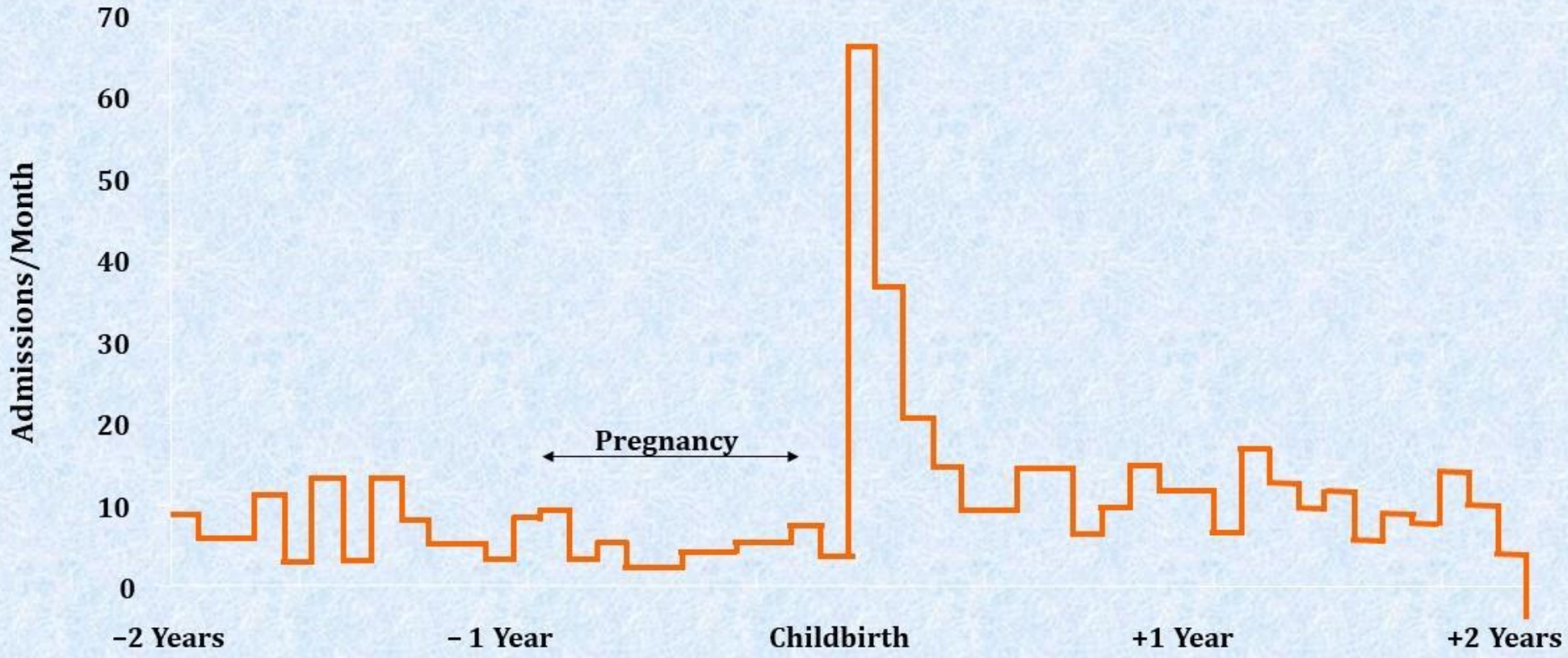


Mechanisms of Postpartum Psychiatric Disorders

- **Sleep**
- **Psychosocial**
- **Neuroimmune**
- **Hormonal**
- **Genetics**

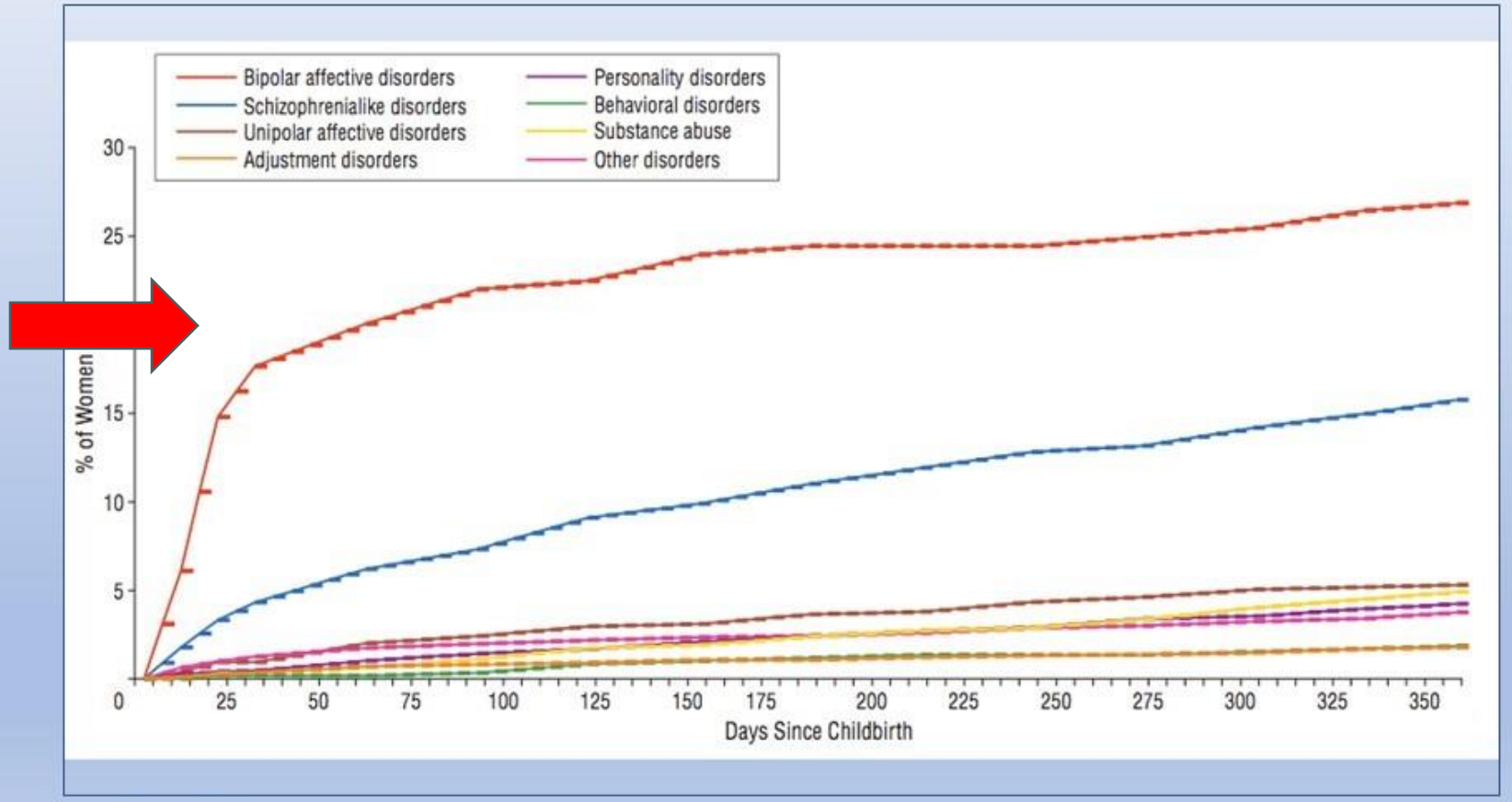
S. Melzer-Brody et al., 2018

Admissions to a Psychiatric Hospital: 2 Years Pre- and Post-Delivery



Kendell RE et al. Br J Psychiatry. 1987; 150: 662-673.

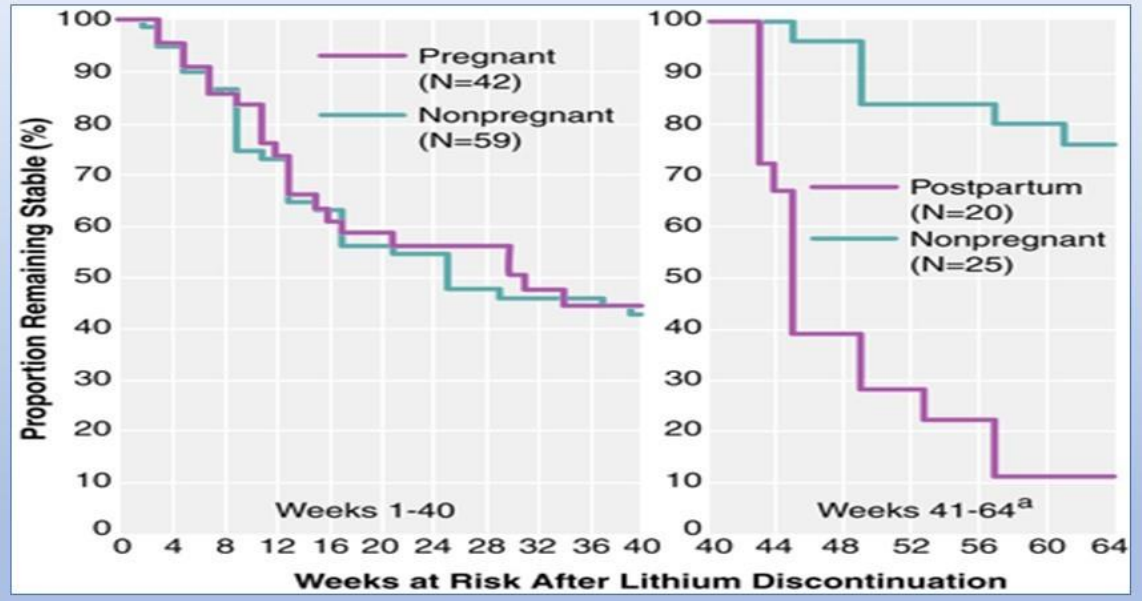
Hospitalisation in postpartum period



Munk-Olsen, 2009

The perinatal woman with bipolar disorder

Weeks at risk after lithium discontinuation



Viguera AC. et al. Am J Psychiatry. 2000; 157: 179-184.

Postpartum Psychosis: Overview

- Prevalence: 0.1 to 0.2% of postpartum women
- 75% have onset within 2 weeks postpartum
- Spectrum of symptoms involving losing touch with reality --- symptoms can be subtle or very dramatic
- Delirium, confusion, memory impairment, irritability
- Paranoia, delusions, hallucinations

- Medical emergency
- Risk of harm to mother and infant, including 4% risk of infanticide

- ***risk for maternal suicide is significantly elevated among depressed perinatal women, and maternal suicides account for up to 20% of all postpartum deaths, making it one of the leading causes of maternal mortality in the perinatal period.***

Postpartum psychosis

- Postpartum psychosis, which is an umbrella term for disorders recorded as, for example, mania, mixed episodes, psychotic depression or psychosis not otherwise specified (not a recognized diagnosis in ICD10 or DSMV).

- Postpartum OCD particular diagnostic challenge—thoughts are highly distressing for the mother

Management of Postpartum psychosis

- Largest study (68 patients) showed stepwise sequence with short-term benzodiazepines, antipsychotics and lithium. 98.4% recovery.
- Another study (34 patients, many of whom had catatonia) treated with ECT
- Antipsychotics not protective against relapse.
- Lithium monotherapy was protective against relapse for at least a year postpartum.
- Lamotrigine used for bipolar depression, some use perinatally. Some evidence can help stabilize mood if woman does not tolerate lithum. Most likely in combination with benzodiazepines and SGAs

REDLEAF CENTER
FOR FAMILY HEALING

Hennepin Healthcare

Mother-Baby Day Hospital;
early evidence of where the streams meet, opportunities for generational trauma healing

- **Adverse Childhood Experiences**
- History of at least 3 ACEs 70%
- History of at least 5 ACEs 47%

MB Day Hospital graduates(n=272)			
Reproductive Status			
Pregnant	12%	**Diagnosis**	
More than one year PP	10%	PTSD	20%
0-12 months PP	78%	MDD	58%
Demographics		Bipolar I or II	25%
Married/Partnered	70%	Anxiety	46%
Public Insurance	44%		
College or beyond	50%		
Lack of social support	88%		
First-time mom	51%		

N. Erickson and H. Kim (in progress)

Screening and Risk Assessment for Mood Disorder in the Perinatal Woman

ric side effects, including mood symptoms
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hormonal contraceptive use, includi

Psychiatrists should be aware of the reproductive options for women and be prepared to have informed discussions with their patients should they be either vulnerable to pregnancy or planning to become pregnant.

80% American women will become pregnant
THINK FAMILY

EDITORIALS

Treatment of Psychiatric Conditions in Pregnancy Starts With Planning

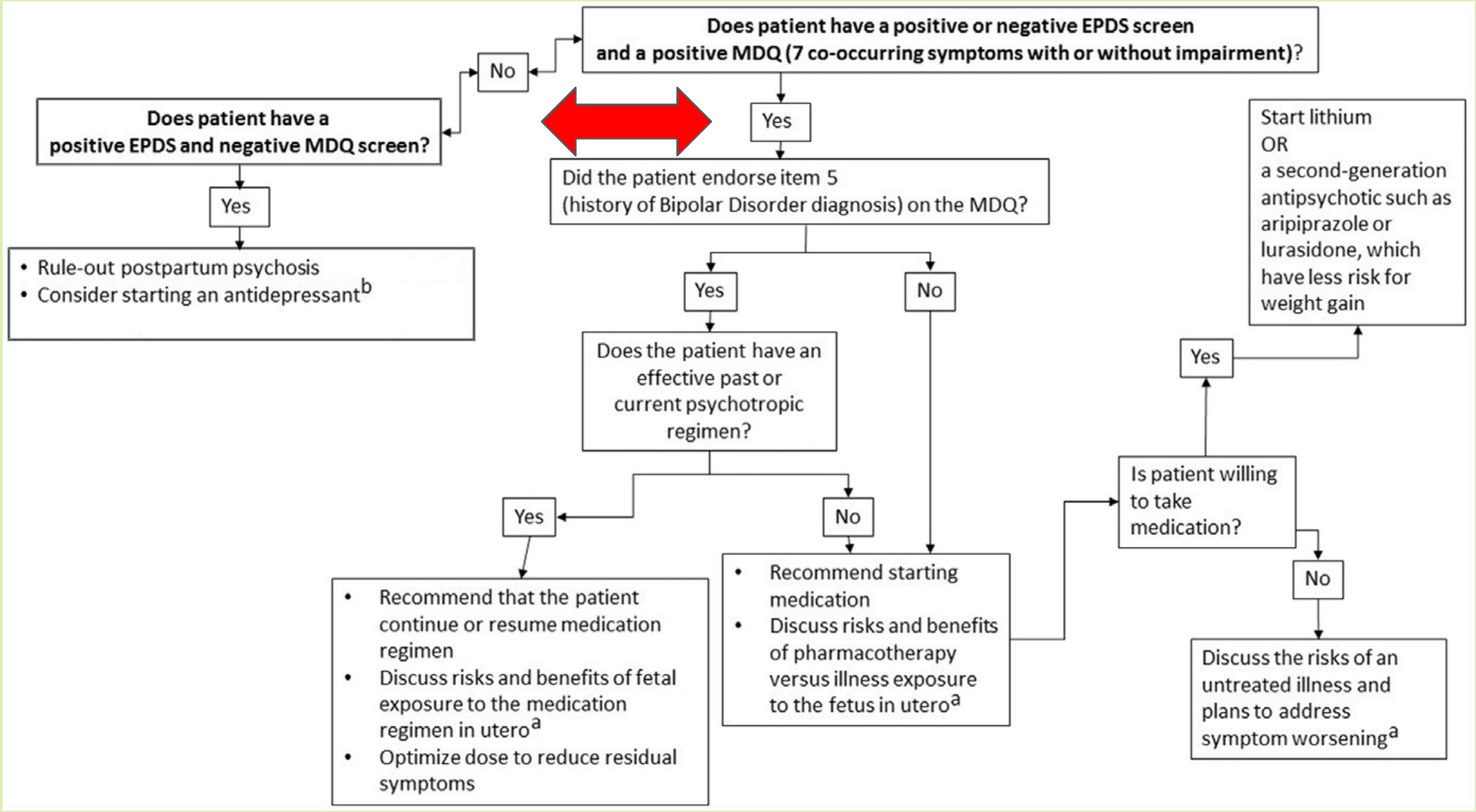
Kimberly A. Yonkers, M.D.

It may seem unusual that a psychiatric journal would include an article with guidance on contraception. However, more women than men suffer from a non-substance-related psy-

2 includes injectable methods, such as medroxyprogesterone acetate, that have slightly higher rates of pregnancy than implants or IUDs; higher pregnancy rates are probably due

Importance of Pre-Conception Care for Women with Mental Health Needs

It is well established that women with both common mental disorders and severe mental illness have an increased risk for adverse obstetric and pregnancy outcomes, including preterm births and impairments. foetal growth. Furthermore, women with severe mental illness also have increased risks of pre-eclampsia, antepartum and postpartum haemorrhage, placental abruption and stillbirths. It is also increasingly clear that these risks are elevated regardless of pharmacotherapy during pregnancy suggesting causality beyond medication. This is unsurprising, given the higher prevalence of well-established obstetric risk factors among women with perinatal mental illness, including distal risk factors (such as domestic violence, and poor or delayed antenatal care) and proximal risk factors (such as obesity, gestational diabetes, hypertension and smoking



Clark and Wisner 2018

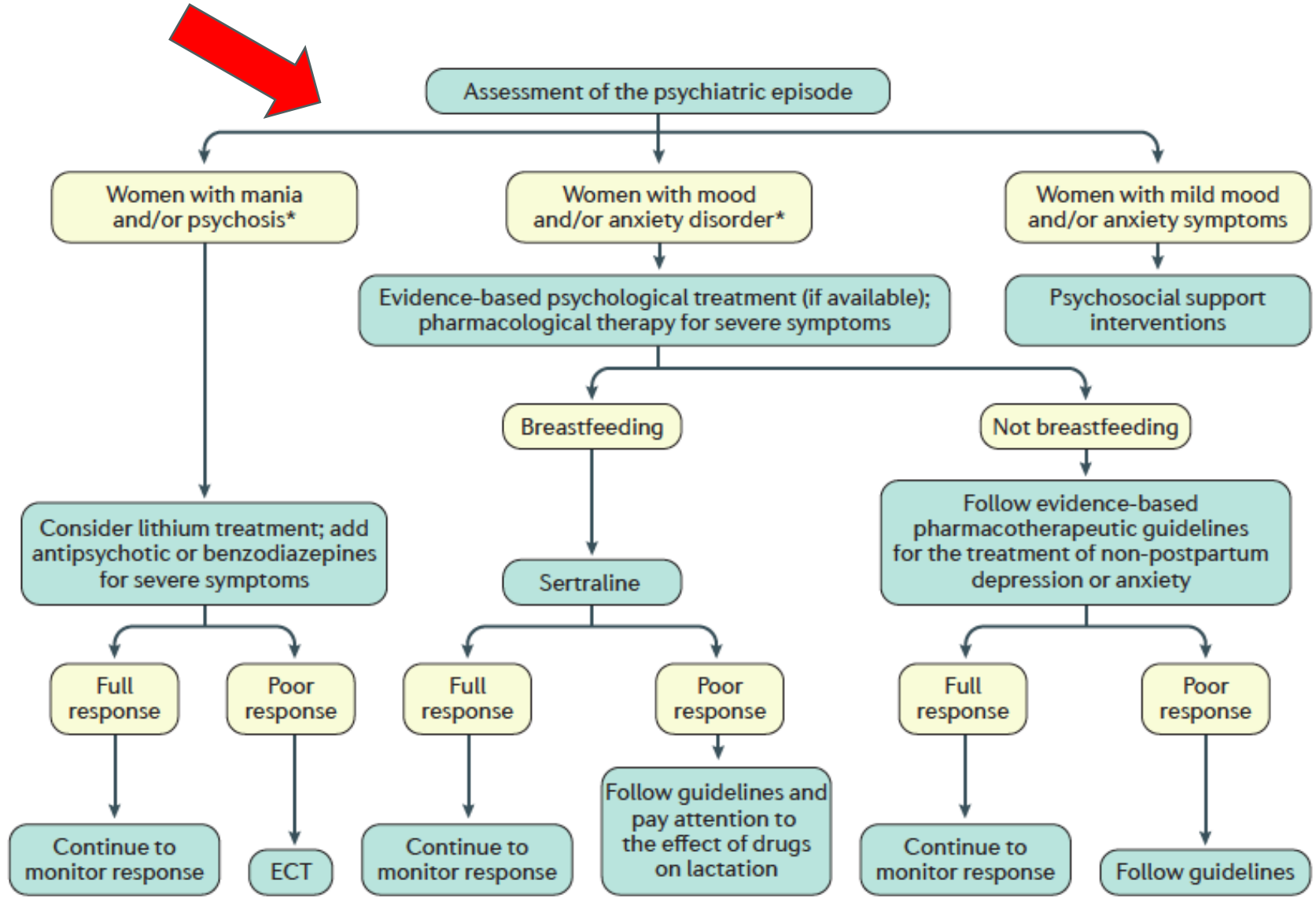


Figure 2 | **Management of first-onset PPDs.** Management of postpartum psychiatric disorders (PPDs) should take into account the diagnosis (such as psychosis, anxiety or depression), symptom severity and, with regards to mood and anxiety disorders, whether the mother is breastfeeding. *At any step in the treatment pathway, electroconvulsive therapy (ECT) can be considered for severe and/or treatment-refractory cases.

Melzer-Brody et al., 2018

Bipolar Mood Episodes Postpartum

	Postpartum Period	
Clinical Group and Type	BD-I (N=479)	BD-II (N=641)
Major depression	19.21	28.71
Mania/hypomania	7.93/1.25	0/2.34
Mixed states	1.25	2.50
Anxiety or panic	6.47	0.94
Psychosis	1.25	0.00
All episodes	37.99	34.49

Viguera et al., Am J Psych 2011;168: 1179-85.

Factors increasing the probability of a diagnostic change from major depressive disorder to bipolar disorders

(general, not only perinatal)

- Earlier age at onset (i.e. <25 years)
- Presence of psychosis
- Atypical depression (eg, hyperphagia or hypersomnia)
- Number of depressive episodes (i.e. three or more previous episodes)
- A family history of bipolar disorders, an extensive family loading of psychopathology, or both
- Non-response to antidepressants or the induction of hypomanic symptoms by antidepressant treatment
- Mixed features
- Pattern of comorbidity (e.g. substance use disorder and migraine) and polymorbidity (three or more comorbid conditions)

(McIntyre et al. Lancet 2020)

Poor Sleep Quality Predicts Severity of Postpartum Depression

by **MGH Center For Women's Mental Health** on September 22, 2014 in **Postpartum Psychiatric Disorders**, **Psychiatric Disorders During Pregnancy**

All women are at risk for postpartum depression (PPD), and there is growing evidence to suggest that poor sleep during pregnancy and the postpartum period may be a risk factor for the development of depression. A recent longitudinal study supports the hypothesis that disrupted sleep may contribute to the emergence and extent of postpartum depression symptoms.

Park EM, Meltzer-Brody S, Stickgold R. Poor sleep maintenance and subjective sleep quality are associated with postpartum maternal depression symptom severity. Arch Womens Ment Health. 2013 Dec;16(6):539-47.

Insomnia in pregnancy is prevalent

- 84% of pregnant women report having one or more sx of insomnia at least a few nights each week.
- 30% report that they rarely or never get a good night's sleep during pregnancy
- Pts can develop a phobia about insomnia, particularly as birth is getting closer

National Sleep Foundation, Sleep in America Poll 2007

General management guidelines for non-psychotic psychiatric disorders

- Identify somatic comorbidities and optimize their management.
- Check the mode of delivery, whether complications were present and whether delivery was experienced as traumatic. In the case of post-traumatic stress symptoms, consider specific treatments.
- Assess for suicidal thoughts and intrusive thoughts of harm towards the baby.
- Consider the safety of the baby and whether the mother can provide care for the baby if she is alone or whether other adult supervision is required.
- Ask the mother about her attitude towards her baby and observe maternal–child interactions. Consider specific treatments with signs of problematic interactions or bonding.
- Review the feeding pattern of the baby. Address problems with breastfeeding or bottle feeding.
- Provide strategies to preserve sleep, such as finding another person to feed the infant at night.
- Assess psychiatric history before starting treatment. Review the nature and effectiveness of past treatments and restart previous effective treatment when appropriate

Decision Making about Medication

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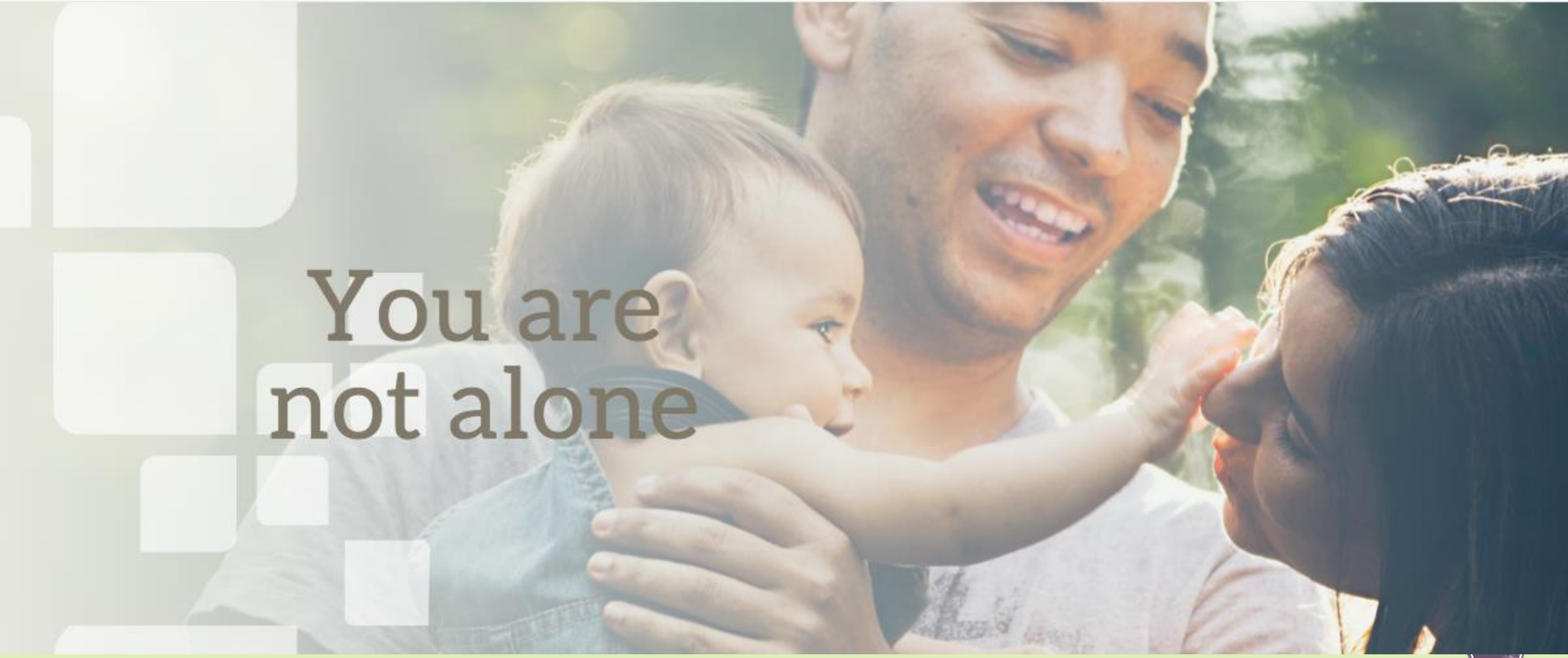


Redleaf Center for Family Healing

Mission: To embrace and strengthen young children, parents, and families

We will foster mental health, supportive relationships, and parent capacity through a multi-generation integrative model of care based in research, lived experience, and social justice.

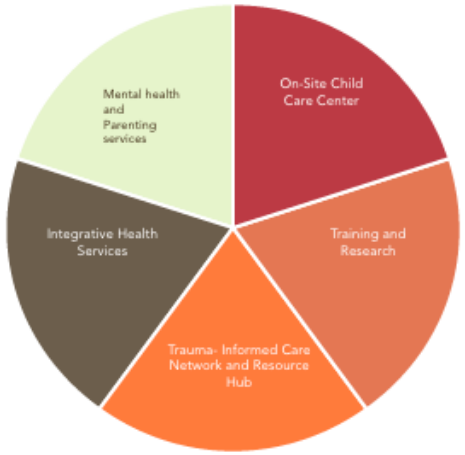
Clinical Services: Expansion of the Mother-Baby Program's outpatient mental health and parenting services for pregnant women and families with children ages 0-5 years old

Integrative Health Services: Holistic nutrition program with teaching kitchen and other integrative services including mindful movement classes and the healing arts

Childcare Center: Drop-in childcare for children of HHS patients and back-up childcare for HHS staff

Training and Research: To understand and disseminate two-generation, integrative, trauma-healing practices

Trauma-Informed Network and Learning Lab: To develop and share trauma-informed models of care



REDLEAF CENTER FOR FAMILY HEALING

HennepinHealthcare

REDLEAF CENTER FOR FAMILY HEALING

HennepinHealthcare Mother-Baby Program

Continuum of mental health needs for pregnant and postpartum mothers

Community-based parent support	Family Support Team	Perinatal Psychiatry, Parenting and Preconception (P4) Clinic	Perinatal Outpatient Program (POP)	Mother-Baby Day Hospital (MBDH)	PSYCH ADMIT

REDLEAF CENTER FOR FAMILY HEALING

where the streams meet: opportunities for healing

Downstream *intervention for mother*

Parent's urgent mental health needs

And

Child's urgent developmental needs for support and protection

Upstream *intervention for children*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Low Cost Drug Options with Price
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Natural Standard
Chronic Pain Management Tools
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Formulary (updated quarterly)
Medications and Mother's Milk
LACTMED National Library of Medicine Drug and Lactation Database


REPROTOX
Welcome to Reprotox
An information system developed by the Reproductive Toxicology Center for its members.
REPROTOX® contains summaries on the effects of medications, chemicals, infections, and physical agents on pregnancy, reproduction, and development. The REPROTOX® system was developed as an adjunct information source for clinicians, scientists, and government agencies. Patients should consult their health care providers rather than relying on REPROTOX® summaries.
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Psychiatric Disorders During Pregnancy
Pharmacologic treatment during pregnancy: Weighing the risks
Although pregnancy has typically been considered a time of emotional well-being, recent studies suggest that up to 20% of women suffer from mood or anxiety disorders during pregnancy. Particularly vulnerable are those women with histories of psychiatric illness who discontinue psychotropic medications during pregnancy. In a recent study which prospectively followed a group of women with histories of major depression across pregnancy, of the 82 women who maintained antidepressant treatment throughout pregnancy, 21 (26%) relapsed compared with 44 (68%) of the 65 women who discontinued medication. This study estimated that women who discontinued medication were 5 times as likely to relapse as compared to women who maintained treatment.
High rates of relapse have also been observed in women with bipolar disorder. One study indicated that during the course of pregnancy, 70.8% of the women experienced at least one mood episode. The risk of recurrence was significantly higher in women who discontinued treatment with mood stabilizers (85.5%) than those who maintained treatment (37.0%).
Although data accumulated over the last 30 years suggest that some medications may be used safely during pregnancy,

Risk/Benefit/Alternatives Discussion

- What is known/unknown about risks of untreated illness in your patient
- What are known/unknown risks of treatment options to patient(mother) and fetus/baby
- “Parenthood is a journey into the unknown but together we can try to make decisions which reduce the overall risk.”
- Framework of assessing risk above baseline for both pregnancy and psychiatric illness.

“Best Practices”

- Share information:
  - medical knowns and unknowns (data, use your resources!)
  - Ask what the patient thinks is best for herself and her family
- Decrease the sense of “black or white”
- Think ahead
- Create a sense of options and working together, continuously weighing risks to mother and fetus/newborn and working to decrease the risk for both

Guiding principles

- Make treatment recommendations based on:
  - Severity of underlying disorder
  - History of treatment response
  - Individual patient preference

Barriers and Challenges

- Stigma of mental health and psychiatric illness in general
- Lack of timely intervention with knowledgeable providers
- Aversion to taking medication - mostly fear based due to lack of knowledge
- Negative feedback from support system on symptoms or use of medications
- Sometimes providers are quick to offer a prescription without listening which disrupts the therapeutic alliance

Pharmacologic Treatment in Perinatal Depression

The American Psychiatric Association and American Congress of Obstetrics and Gynecology both recommend either psychotherapy or antidepressant medication as first-line treatment for mild to moderate perinatal depression

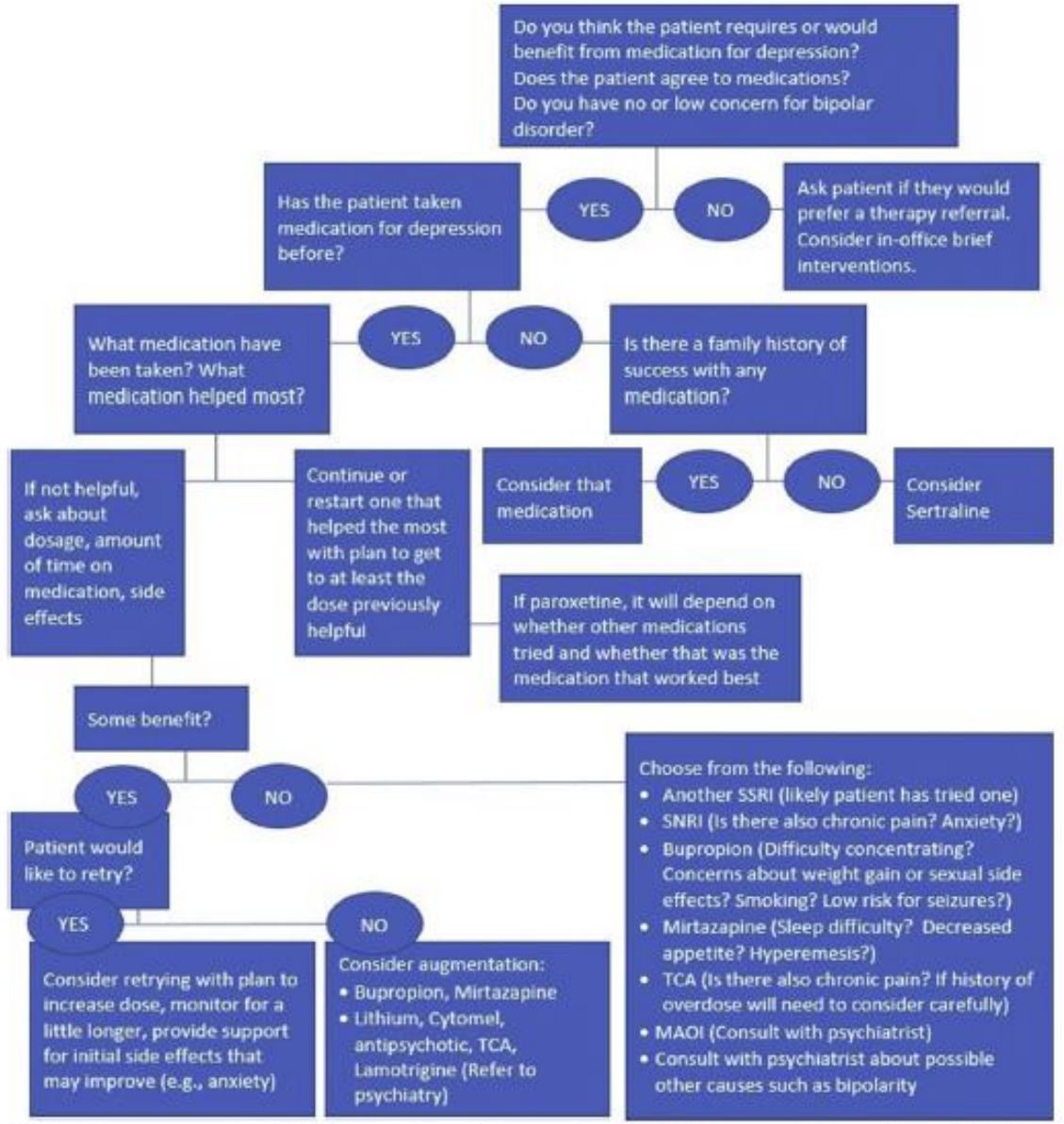

Fig. 1. Treatment algorithm for perinatal depression. MAOI, monoamine oxidase inhibitor; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant.

Risk of Relapse with Medication Discontinuation

The rule of thumb for treating perinatal women is that one size does not fit all, and each patient should have an individualized discussion with her provider about the risks of medication weighed against her own risks of not taking medication during pregnancy or lactation. Women who decide they want to come off medications should do so with the supervision of a physician, and ideally preconceptionally. Abrupt medication discontinuation has been associated with high relapse rates. In a prospective sample of 201 euthymic women on stable doses of antidepressants at the time of conception, 68% who discontinued medications during pregnancy experienced relapse of symptoms, And 60%of those who stopped their medication restarted it later in pregnancy. Predictors of relapse included having 4 or more prior depressive episodes and suffering illness for more than 5 years. The most judicious approach is to use the least amount of medication that helps a woman feel better and keeps her well. As noted, it is important to recognize that higher dosages are often required than pre-pregnancy dosages owing to increased blood volume and increased metabolism during pregnancy. Managing sleep and comorbidities, while providing a multidisciplinary treatment approach, will improve outcomes with medication treatment of perinatal depression.

SSRIs in Pregnancy

- There have been conflicting data about SSRI exposure during pregnancy and the potential risk of small for gestational age, preterm delivery, and spontaneous abortion. These risks have been associated with perinatal depression itself and the risk may lie with the illness rather than exposure.

- Most current data looking at exposure to all SSRIs show no consistent information to support specific teratogenic risks

- Up-to-date publication examining a cohort of more than 3 million women, and adjusting for potential confounding variables, concluded a very small increased absolute risk for PPHN (persistent pulmonary hypertension) with SSRI exposure (adjusted odds ratio of 1.28 for SSRIs vs 1.14 for non-SSRIs).

Poor Neonatal Adaptation Syndrome (PNAS)

- Most common of the potential adverse effects of taking SSRI in pregnancy, estimated to occur in up to 30% of exposed babies
- Usually short lived with a median duration of 3 days
- 75 % complete resolution by 5 days
- reports of adaptation signs lasting up to 4 weeks
- **Premature babies** are more vulnerable to PNAS

❖Symptoms can vary greatly in severity. and can manifest as a range of symptoms, including irritability, respiratory distress, hypoglycemia, feeding difficulties, increased or decreased tone, sleep disturbance, and, more rarely, seizures, prolonged QT interval, or cardiac arrhythmias.

Autism/Long-term development and fetal exposure to SSRIs

The risk for autism spectrum disorders associated with SSRI exposure during pregnancy is controversial. Maternal depression has been found to be potentially neurotoxic, and is a considerable confounding variable. Some studies have shown potential risk for autism spectrum disorders with SSRI exposure however, when adjusted for confounders, including the risk of maternal depression, statistical significance is usually lost. Other developmental outcomes that must be considered with perinatal exposure to psychotropic medications include language, growth, and motor development. Review of available data demonstrates no effects of in utero SSRI exposure on head circumference, weight, or length during the first year of life. Examination of the literature on IQ and behaviors of sibling pairs in mother's with and without SSRI exposure during pregnancy showed that the child's IQ was predicted by maternal IQ. Maternal depression has an impact on problematic behaviors in the children. Last, a longitudinal study of the development in children within utero SSRI exposure found no differences in mental indices; psychomotor scores were mildly lower during the first year of life, and then normalized thereafter.

Postpartum and Breastfeeding

If the Relative Infant Dose is less than 10%, most medications are quite safe to use. The RID of the vast majority of drugs is < 1%.

(*from Medications and Mothers' Milk*)

SSRIs and breastfeeding

Breastfeeding is promoted by all major medical groups for the first year of the child's life to improve both maternal and infant health outcomes.

Therefore, to minimize stress on the mother, for most medications pumping and dumping (ie, pumping and then throwing out all milk while taking a medication or after taking the medication throwing out the first pump of milk after taking the medication) is not advised.

However, there may be cases where the risk–benefit ratio supports this practice, such as in the case of a treatment agent that may have high likelihood of passing into breast milk.

As noted, the amount of medication exposure in breast milk is thought to be far less than exposure during pregnancy through transplacental passage. Data from the National Institutes of Health have demonstrated that SSRIs are compatible with breastfeeding.

It is important to collaborate with the infant's pediatrician when a mother is taking a psychotropic medication during lactation, and to monitor the infant for sedation, proper weight gain, and achievement of developmental milestones. For any medication other than lithium, the literature does not support checking infant blood levels.

For questions, an important resource is LACTMED, https://toxnet.nlm.nih.gov/newtoxnet/lactmed.html, a database from the National Institutes of Health, with information on medication patients may have taken during pregnancy.

Lithium Treatment during Pregnancy

Congenital malformations Fetal exposure to lithium has been associated with an increased risk for cardiac abnormalities. The risk for Ebstein's anomaly with first trimester exposure is 1 (0.1%) to 2 in 1000 (0.2%)

Folate supplementation with 5 mg reduces the risk and severity of congenital heart disease by suppressing lithium-induced potentiation of a signaling pathway that inhibits genes important to initiating cardiogenesis.
No other congenital malformations have been associated with lithium exposure.

For women with first trimester exposure, fetal echocardiography and a level 2 ultrasound examination is recommended at 16 to 18 weeks of gestation to evaluate for anomalies

LITHIUM, ATYPICAL ANTIPSYCHOTICS, AND LAMOTRIGINE: DATA REGARDING LONG-TERM EFFECTS ON CHILDREN'S DEVELOPMENT

Recent literature has shown that lithium's association with cardiac malformations is smaller than previously thought and must be weighed against the risks of the illness itself. Although limited, data for lithium and second-generation antipsychotics indicate effects are reassuring with regards to child development. Despite some earlier concerns, subsequent studies have suggested that lamotrigine is not associated with an increased risk of congenital malformations. The long-term safety profile of lamotrigine during pregnancy is promising. In a review that included 8 studies, lamotrigine had no adverse outcomes on infant IQ or neurodevelopment.

Resources: medical literature

- S. Melzer-Brody et al., *Postpartum Psychiatric Disorders,* Nature Reviews 2018
- M. Kimmel et al., *Pharmacologic Treatment of Perinatal Depression,* Obstet Gynecol Clin N Am 2018
- Krebs et al., *Neurodevelopment: the Impact of Nutrition and Inflammation during Infancy in Low-Resource Settings,* Pediatrics 2017
- C. Hoffmann and K. Wisner, *Psychiatry and Obstetrics: an Imperative for Collaboration,* Am J Psychiatry 2017
- C. Bethell et al., *Positive Childhood Experiences and Adult Mental Health,…,* JAMA Pediatrics 2019
- L. Howard and H. Khalifeh, *Perinatal Mental Health: a review of the progress and challenges,* World Psychiatry 2020
- E. Valadez et al., *Early Parenting Intervention Effects on Brain Responses to Maternal Cues Among High-Risk Children,* Am J Psychiatry 2020

Preface

Treatment of Peripartum Mental Health Disorders: An Essential Element of Prenatal Care

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Editors

Obstetricians and Gynecologists are acutely aware of the prevalence of maternal mental health disorders and the impact they can have on maternal, fetal, and newborn health and child development. Sadly, fewer than half of pregnant women with a mental health illness are identified in clinical settings. Among women who are identified, only 15% receive mental health treatment, fewer than 10% receive adequate treatment, and less than 5% achieve remission from their illness.

Obstet Gynecol Clin N Am 45 (2018) xv–xvi
https://doi.org/10.1016/j.ogc.2018.06.001
0889-8545/18/

Resources medical literature

- R. Munoz and M. Weissmann, *"Fostering Healthy Mental, Emotional, and Behavioral Development in Children and Youth": National Academies Report Calling for a Decade of Children and Youth,* Am J Psychiatry 2020

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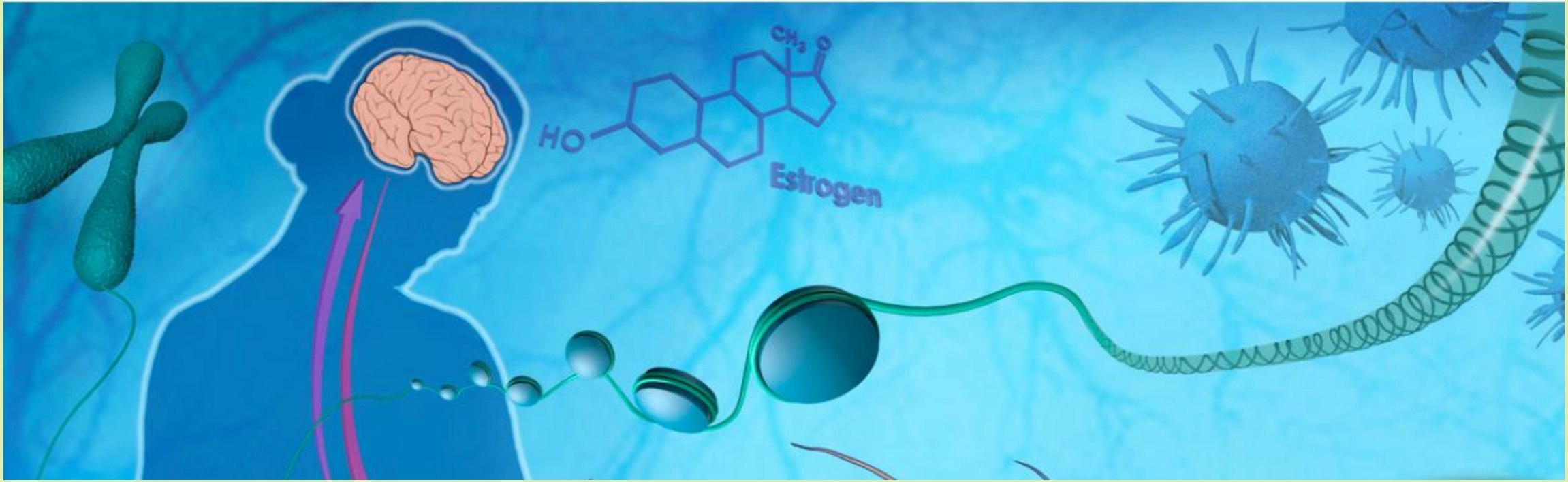

Table 1
Medications, dosing, and unique considerations

Generic Name	Trade Name	Dosage Range	Unique Considerations/Indications
SSRIs[a]			
Sertraline	Zoloft, Serafem	50–200 mg,[b] increase by 25 mg or 50 mg, for very anxious patients 12.5 mg	Due to half-life small, even negligible amounts transmitted into breast milk.
Fluoxetine	Prozac	20–80 mg, increase by 10 mg or 20 mg	Longer half-life → withdrawal less likely if doses are missed, but also longer to get out of the system if there are adverse effects, likely greater amount in breast milk, thought to be more activating.
Citalopram	Celexa	20–40 mg, increase by 10 mg or 20 mg	FDA Drug Safety Communication that >40 mg could result in a life-threatening heart arrhythmia.
Escitalopram	Lexapro	10–20 mg,[b] increase by 5 mg or 10 mg	
Paroxetine	Paxil, Pexeva, Brisdelle	10–60 mg, increase by 10 mg or 20 mg, CR in 12.5 mg doses	Older data demonstrated potential for a 1.5- to 2.0-fold increase risk in cardiovascular malformations,[141] leading to a 2005 warning.[142] Recent data show no consistent information to support teratogenic risks.[42]
Fluvoxamine	Luvox, Faverin, Fevarin, Floxyfral, Dumyrox	25–150 mg, increase by 25 mg	More often used for treatment of obsessive compulsive disorder.
SNRIs[c]			
Venlafaxine	Effexor, Effexor XR	37.5–375.0 mg, increase by 37.5 mg	Older and most data available.
Duloxetine	Cymbalta, Irenka	20–120 mg, increase by 20 mg, 30 mg	
Milnacipran	Savella	100 mg BID–200 mg, increase by 12.5 mg, 25 mg, 50 mg	No studies currently available on use in pregnancy examining neither teratogenic risks nor available data about long-term developmental outcomes.

Desvenlafaxine	Pristiq, Khedezia	25–400 mg	No studies currently available on use in pregnancy examining neither teratogenic risks nor available data about long-term developmental outcomes. No evidence >50 mg is helpful.
Other antidepressants: Their own unique mechanisms of action			
Buproprion	Wellbutrin SR, Wellbutrin XL, Zyban, Aplenzin, and Forfivo XL	150–450 mg, increase by 150 mg, SR BID dosing	Not to exceed 450 mg owing to an increased risk of seizure, greater concern for seizure in those with a history of seizure or those engaging in purging behaviors. Helpful for smoking cessation[144] and even evidence for lower prematurity risk for smokers.[145] May help ADHD and other addictive disorders, such as overeating.
Mirtazepine	Remeron	15–45 mg, increase by 7.5 mg, 15 mg	Antiemetic effects in addition to antidepressant and anxiolytic effects,[146,147] and helps with sleep and decreased appetite.
Trazodone, nefazodone	Oleptro, Desyrel, Serzone	50–400 mg, ½ tablet (25 mg)-100 mg for sleep	Sleep aid[148] at lower dosages, higher dosages more antidepressant affects. No differences in the rate of major malformations.[93]
Tricyclic TCAs[d]			
Desipramine, nortriptyline	Norpramin, Pamelor, Aventyl	Dose varies for each TCA	Less anticholinergic, so less orthostatic hypotension and constipation, which are common in pregnancy.[149,150]
Amoxapine, impramine, doxepin, clomipramine, trimipramine, amitriptyline, protriptyline	Asendin, Tofranil, Sinequan, Silenor, Anafranil, Sumontil, Vivactil, Elavil, Vanatrip	Dose varies for each TCA, blood levels are possible to obtain	
MAOIs[e]			
Isocarboxazid, phenelzine, selegiline, tranylcypromine	Marplan, Nardil, Emsam, Parnate	Dose varies for each MAOI	Requires special diet, interacts with some medications to cause life-threatening hypertensive crisis.

(*continued on next page*)

Table 1
(*continued*)

Generic Name	Trade Name	Dosage Range	Unique Considerations/Indications
Mood stabilizer and antidepressant			
Lamotrigine	Lamictal	>50 mg, start at 25 mg daily and increase by 25 mg every 2 wk to decrease risk of Stevens–Johnson syndrome	Some evidence to use for augmentation in treatment-resistant depression,[151,152] OCD,[153,154] and, therefore, possibly obsessive compulsive symptoms of perinatal depression,[155] and for mood dysregulation and aggressive behaviors of borderline personality disorder, which is often comorbid with depression.[156]
Atypical antipsychotics (aripiprazole, quetiapine, olanzapine, risperidone, ziprasidone, lurasidone, paliperidone)	Abilify, Seroquel, Zyprexa, Risperdal, Geodon, Latuda, Invega		With augmentation of depression resulted in modest but statistically significant increased likelihood of remission during 12 wk of treatment compared with switching to bupropion monotherapy[157]; small study found less likely to have a postpartum mood episode.[158]
Lithium		Increase by 150 mg, 300 mg; Therapeutic blood level 0.4–0.8 for depression augmentation, 0.8–1.2 for mood stabilization	Helpful for monotherapy and augmentation of unipolar depression,[159,160] and postpartum psychosis in addition to Bipolar Disorder.[161] Increases the likelihood of maintaining mood stability during pregnancy and preventing postpartum relapse[162–164] as does immediately restarting postpartum[162,165]

Abbreviations: ADHD, attention deficit hyperactivity disorder; BID, 2 times per day; CR, controlled release; FDA, US Food and Drug Administration; MAOI, monoamine oxidase inhibitor; OCD, obsessive–compulsive disorder; SNRI, Serotonin norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor; TCA, tricyclic antidepressant; XR, extended release.

[a] All treat depression and anxiety, higher dosages needed for anxiety, Black Box warning for use in children secondary to an increased risk of suicidal thoughts at initiation (still used to treat depression, anxiety, which will decrease risk of suicide), increase dosage for 1 week for menses for premenstrual mood worsening or anxiety.

[b] Some providers may increase to 250 mg or 30 mg.

[c] Treat depression and anxiety, and have also shown to be effective treatments for chronic pain.[143]

[d] First discovered in the 1950s, revolutionized treatment of depression and preceded SSRIs,[88] but are associated with higher mortality rates owing to overdose.[89] Helpful for chronic pain.

[e] Gracious and Wisner[90] indicate a use in patients with atypical depression that have not otherwise responded.

Resources: web-based

- Womensmentalhealth.org
- Postpartum.net
- 4th Trimester Project
- Lactmed
- Hales's Medications & Mother's Milk
- MothertoBaby
- Reprotox.org
- PACES Connection
- NCRPtraining.org
- Harvard Center on the Developing Child
- Redleaf Center for Family Healing (HCMC)
- Masonic Institute for the Developing Brain (U of MN)