



# **Flattening the curve: What will it take to prevent mental health conditions in youth?**

Daphne Holt, MD, PhD

Director, MGH Resilience and Prevention Program and  
Co-Director, Psychosis Clinical and Research Program  
Associate Professor, Harvard Medical School

Annual Conference of the Department of Mental Health Centers of Excellence  
May 9, 2022

# *'It's Life or Death': The Mental Health Crisis Among U.S. Teens*

**A survey on global mental well-being shows that the kids are not all right**

## Colleges Brace for Potential Increased Need for Mental Health Services

### **Study: Adolescents Accounted for Larger Share of Suicides in 2020**

An analysis of data from 14 states finds another troubling sign for youth mental health amid the COVID-19 pandemic.


By [Steven Ross Johnson](#) | April 25, 2022, at 3:29 p.m.

**The kids are not all right. The CDC finds mental health among teens has declined**

 By [Ayesha Rascoe](#), [Fernando Narro](#)  
Published April 24, 2022 at 1:25 PM CDT

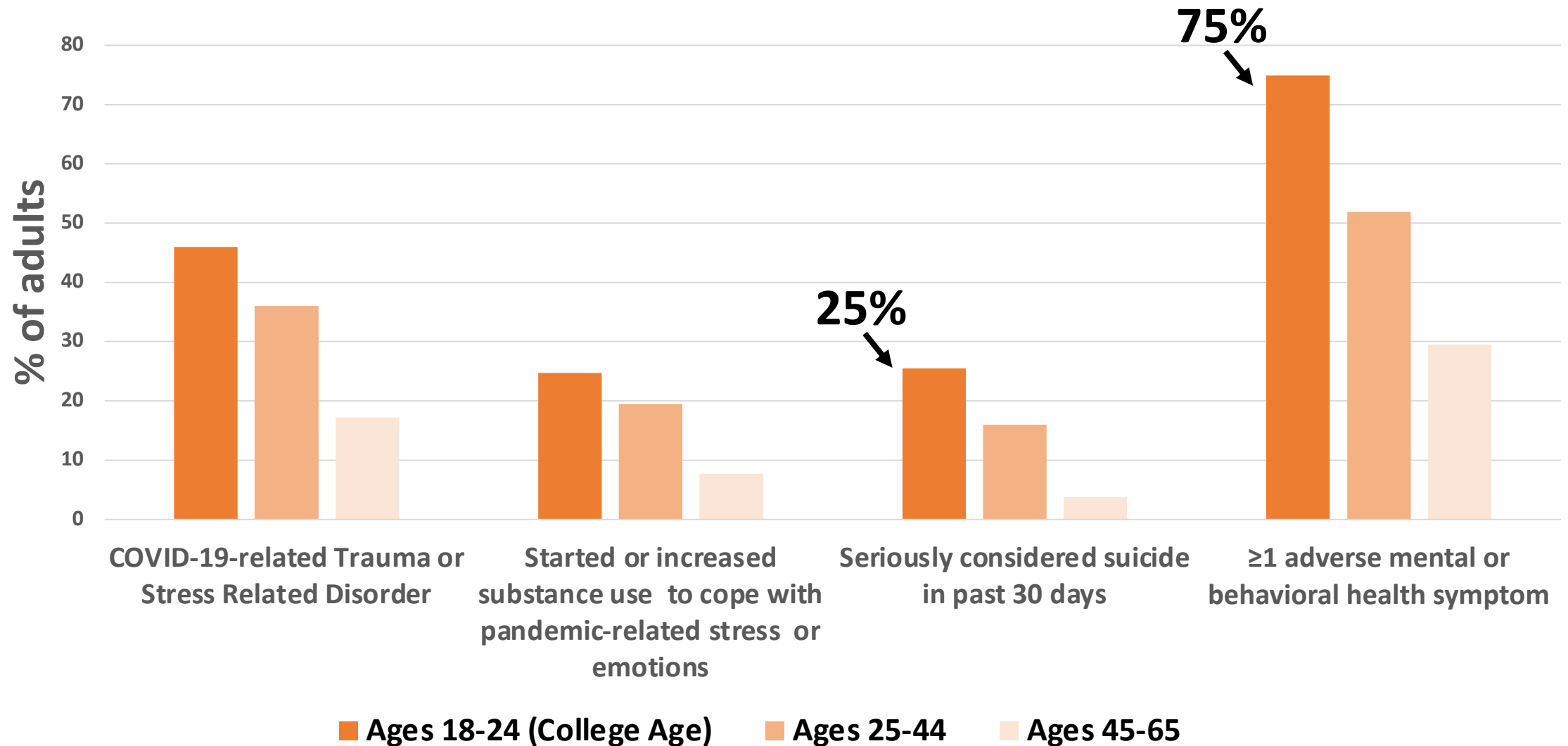
### **'A cry for help': CDC warns of a steep decline in teen mental health**

More than 4 in 10 told the health agency they felt 'persistently sad or hopeless'

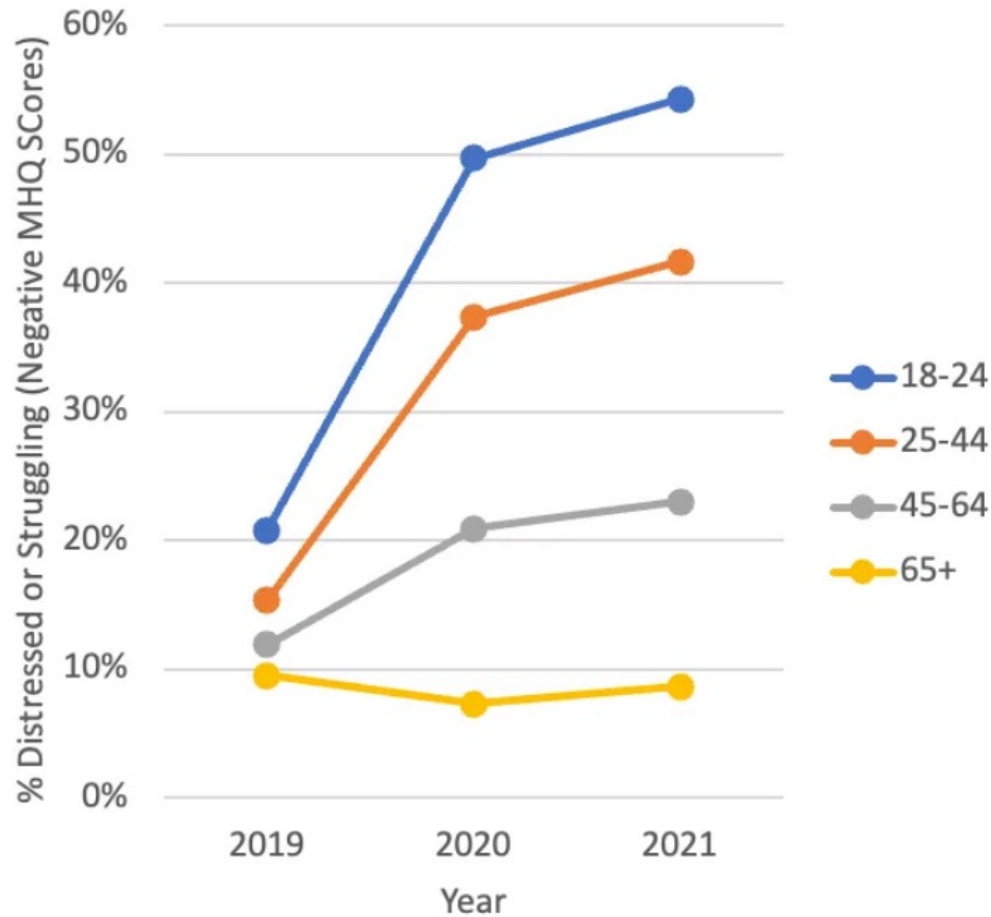
 By [Moriah Balingit](#)

March 31, 2022 at 1:00 p.m. EDT

# CDC report during the summer of 2020

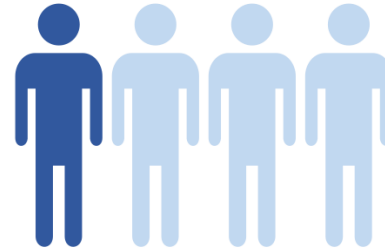


More young adults fell into a mental wellbeing zone of distressed or struggling during the pandemic



<https://www.americaspromise.org>

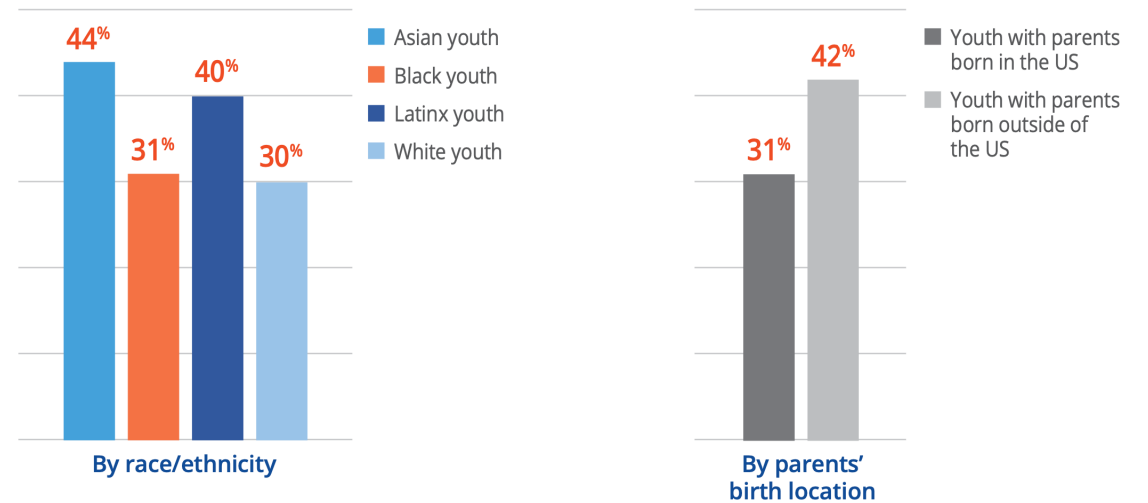
June 2020 survey of 3,300 adolescents age 13-19, 49% white:



more than **1 in 4**

**high school students reported worry, low mood, stress or loss of self-confidence causing insomnia**

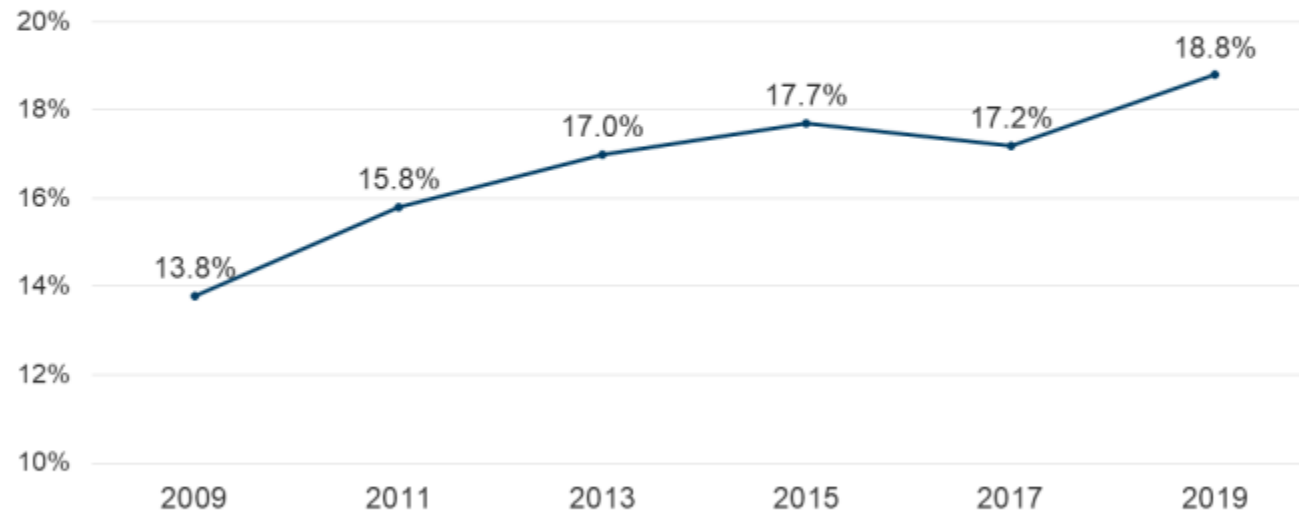
Percent of youth reporting poorer emotional and cognitive health



Margolius, M., Doyle Lynch, A., Pufall Jones, E. & Hynes, M. (2020). <https://www.vox.com/23013483/mental-health-pandemic-young-people-sapien-labs>

# But the mental health of young people was worsening *before the pandemic*

Percent of High School Students Who Seriously Considered Attempting Suicide in the Past Year, 2009-2019

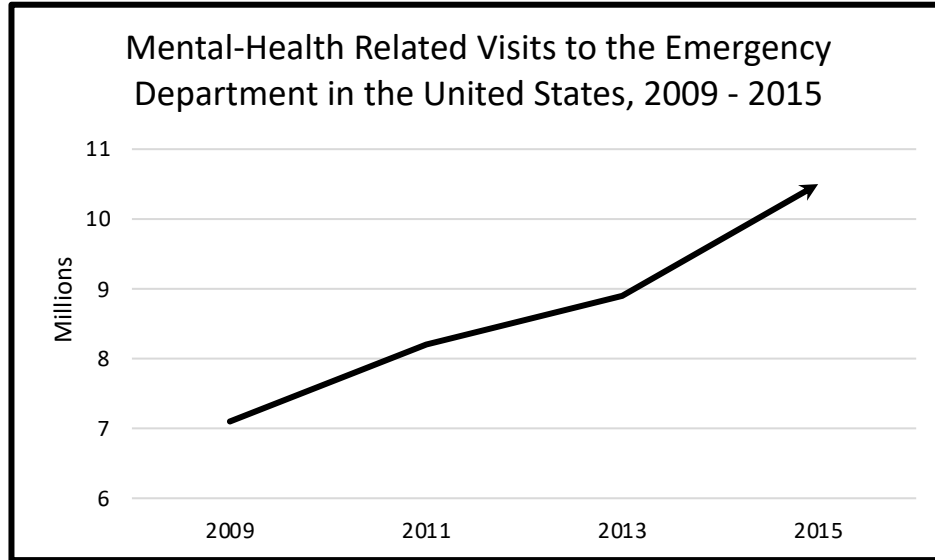


SOURCE: Youth Risk Behavior Survey, 2009-2019.

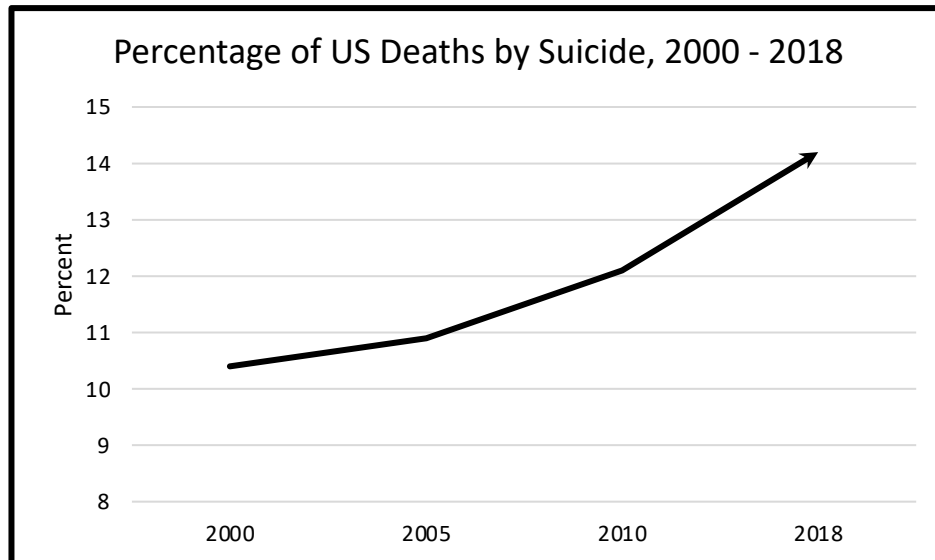
**Percent of High School Students Who Seriously Considered Attempting Suicide in the Past Year, 2009-2019**

<https://www.kff.org/coronavirus-covid-19/issue-brief/mental-health-and-substance-use-considerations-among-children-during-the-covid-19-pandemic/>

# And not just youth...



- Mental health conditions were the largest cause of disability worldwide in 2019
- 56% of U.S. adults with mental health conditions went untreated in 2019



**Is there some way to reverse this trend?**

**(How do we flatten these curves?)**

# Prevention in medicine overall – a great success story

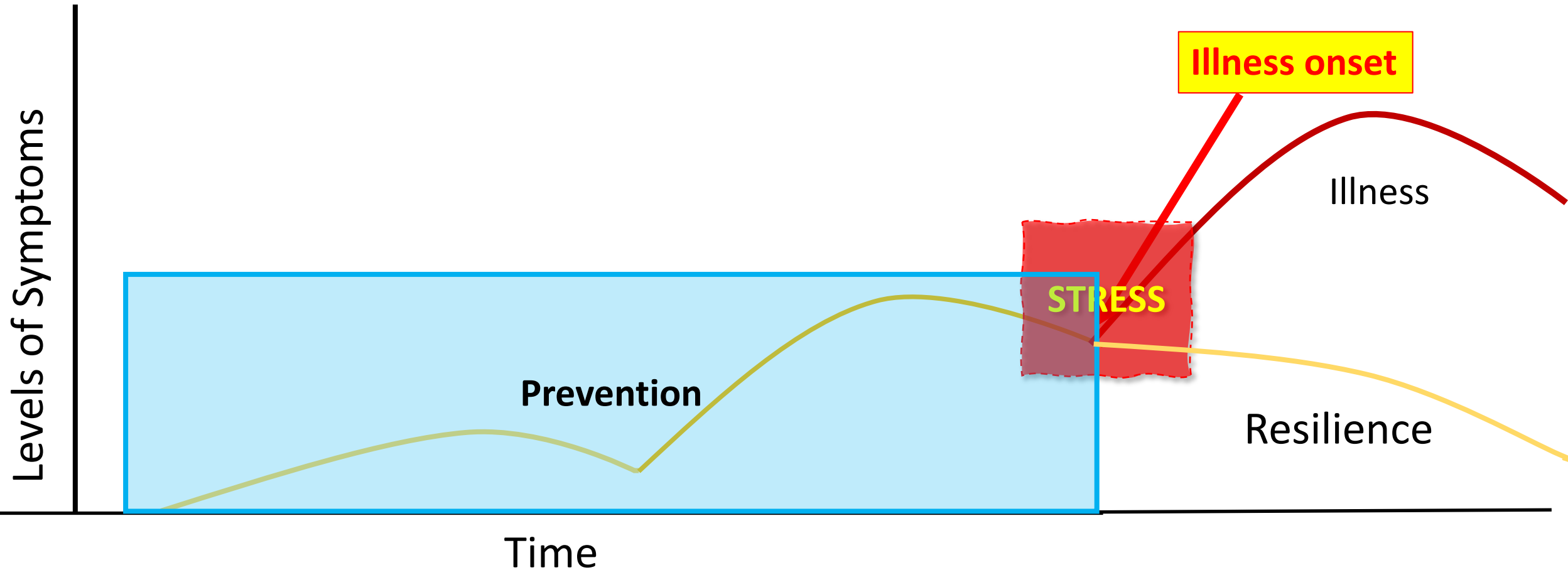
- **Prenatal vitamins** → neural tube defects
- **Vaccinations** → childhood infections
- **Smoking cessation** → cardiovascular disease, cancer
- **Pap smear, mammogram, colonoscopy, PSA test** → cancer



Hand washing, mask wearing, vaccination...

What about a “vaccine” to protect mental health?

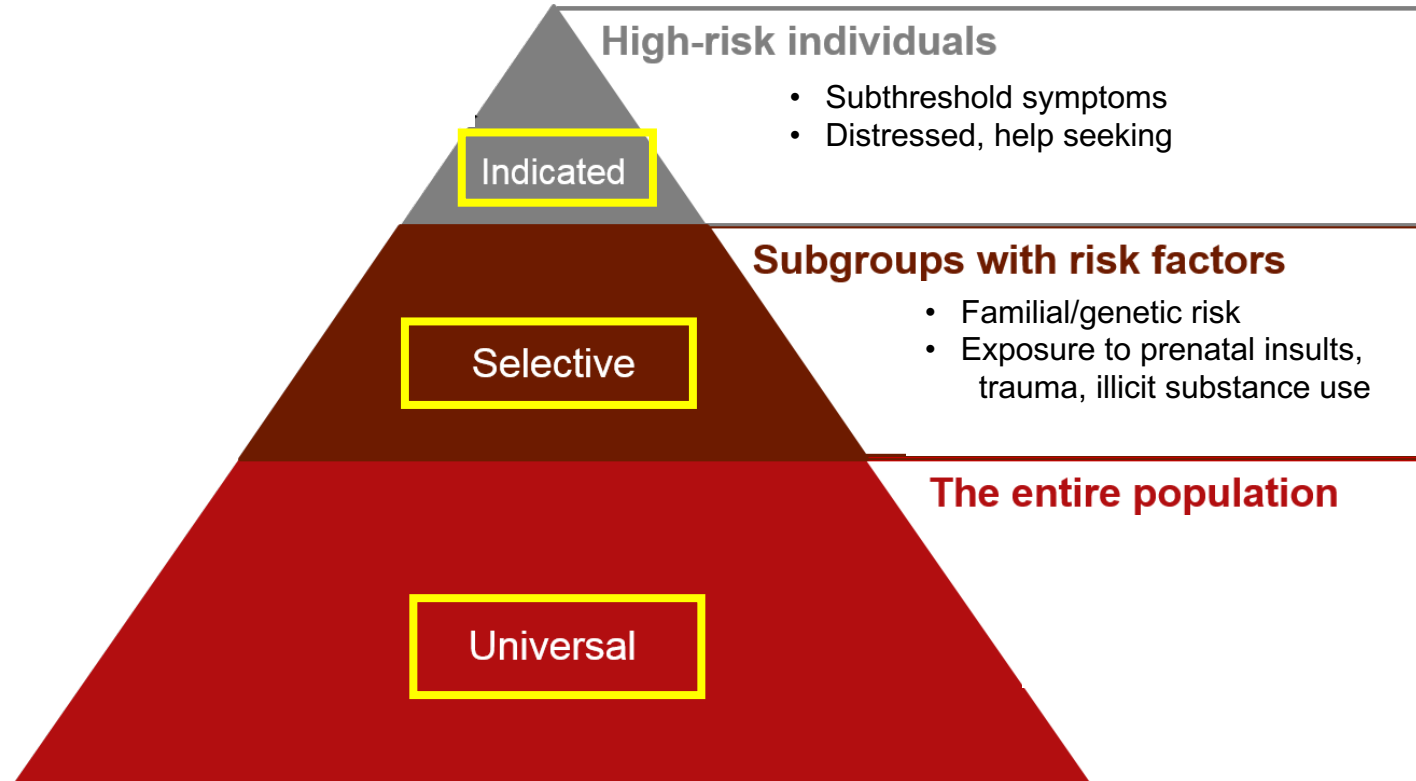
How can we develop a protective “vaccine” for mental health, that can prevent persistent mental health challenges or reduce their severity?





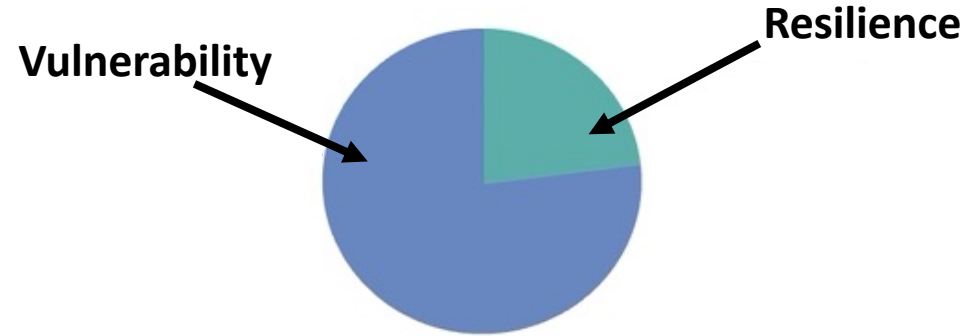
# Prevention in psychiatry: how could it work?

3 categories of preventive interventions in medicine:



# The MGH Resilience and Prevention Program

<https://www.resilienceandprevention.com>



Adolescents



College Students



Healthcare workers



Focused primarily on *indicated* prevention approaches

– developing resilience-boosting psychological interventions for those with some risk and current symptoms

# Resilience Training (RT): How does it work?



- a 4 week-long **Resilience Training** course/workshop (7-12 participants, with 2 facilitators)
- Weekly sessions include: didactic information, experiential exercises, group discussions, home practice
- Collaborative design, relying on participant input
- Can be delivered in person (on campus) or via Zoom



Annie Burke



Nicole DeTore



Jordan Zimmerman



Maren Nyer



Tunde Aideyan



Lauren Utter

# Resilience Training focuses on teaching 3 evidence-based skills:



## **Mindfulness**

- Shown to reduce depression and anxiety and improve brain health



## **Self-Compassion**

- Shown to lower levels of distress



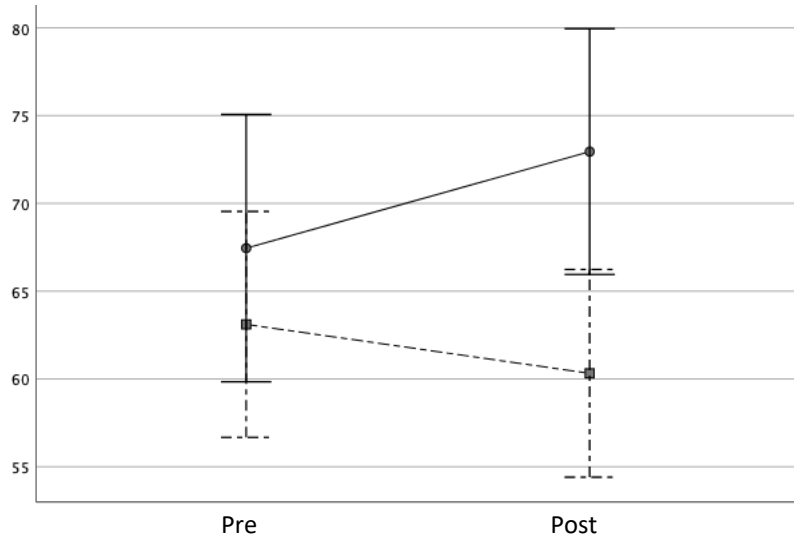
## **Mentalization**

- Shown to improve social functioning

# Effects of Resilience Training

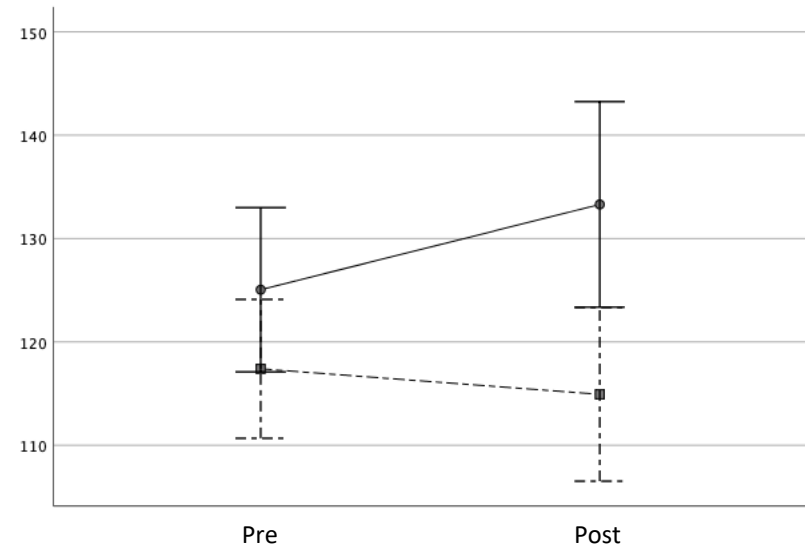
(measured in a randomized controlled trial)

Resilience Training (RT) **increased** resilience-related factors from baseline to after RT when compared to a waitlist control



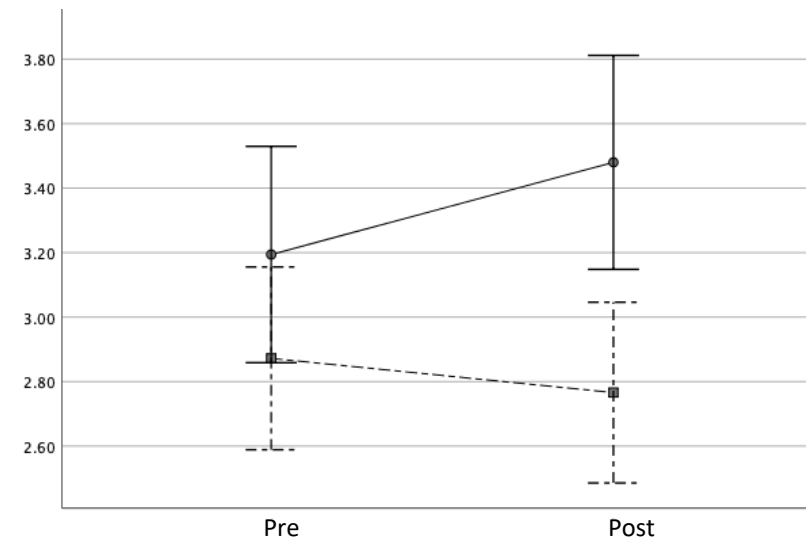
Resilience

Group x time interaction:  
 $F(1,46) = 13.23, p = .001$



Mindfulness

Group x time interaction:  
 $F(1,46) = 8.32, p = .006$



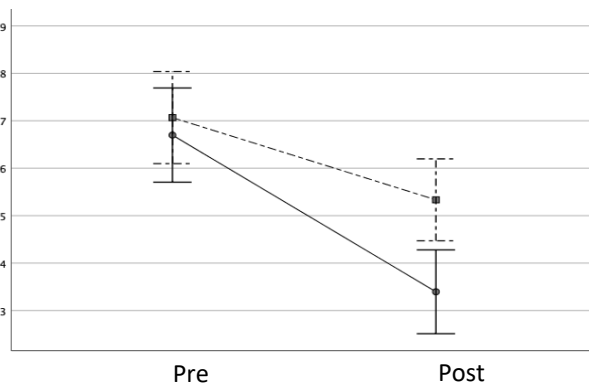
Self-Compassion

Group x time interaction:  
 $F(1,46) = 8.28, p = .006$

— Resilience Training ---- Waitlist Control

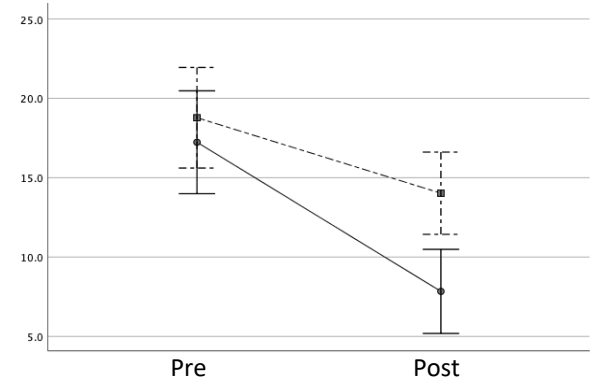
# Effects of Resilience Training

Resilience Training (RT) **decreased** symptoms of depression, psychosis, and anxiety from baseline to after RT when compared to a waitlist control



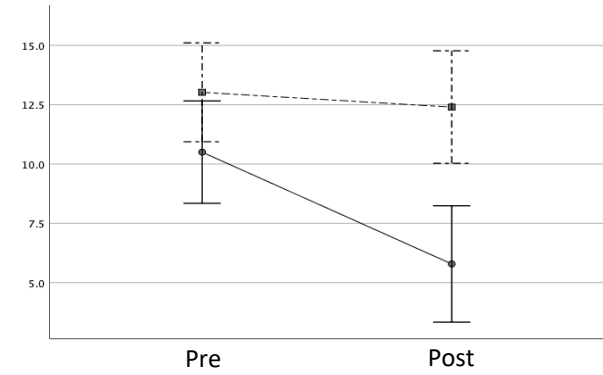
Psychotic Experiences

Group x time interaction:  
 $F(1,86) = 7.66, p = .007$



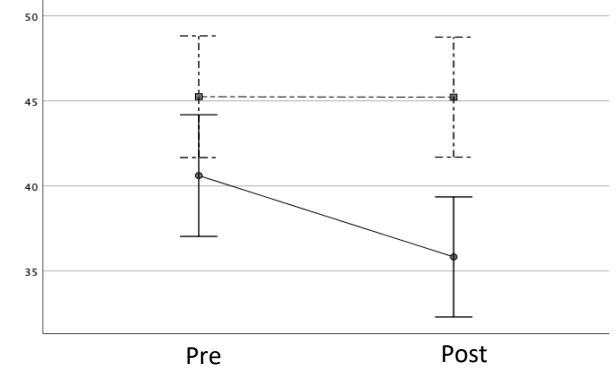
Distress from Psychotic Experiences

Group x time interaction:  
 $F(1,86) = 7.46, p = .008$



Depression

Group x time interaction:  
 $F(1,86) = 13.62, p < .001$



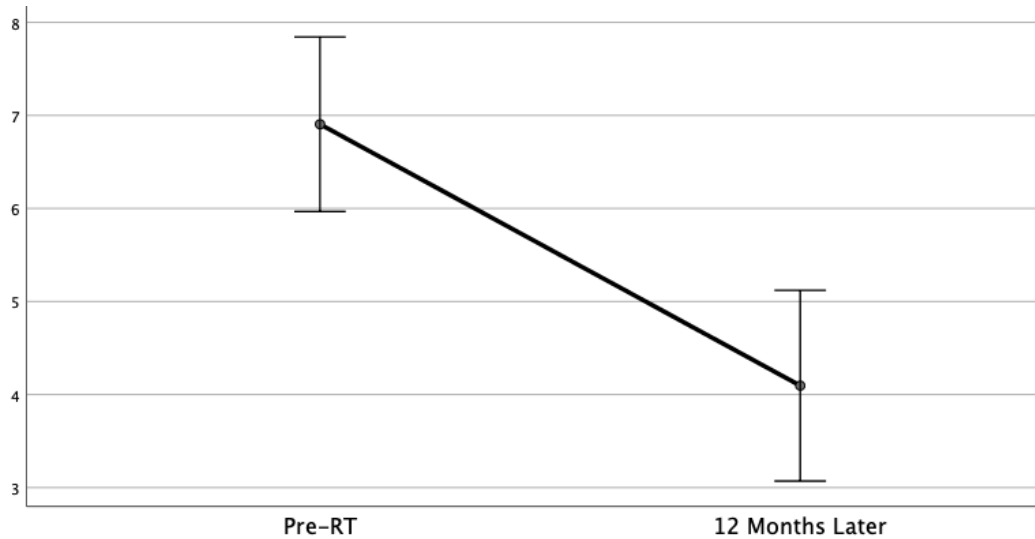
Anxiety

Group x time interaction:  
 $F(1,86) = 5.86, p = .018$

— Resilience Training ---- Waitlist Control

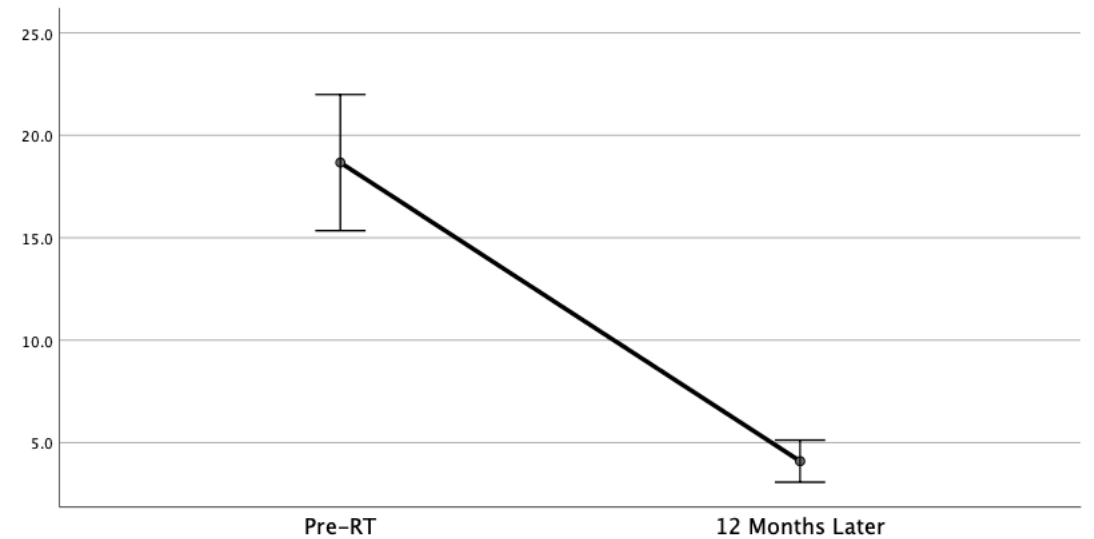
# Effects of Resilience Training

These effects were maintained **12 months later**



Psychotic Experiences

$t(41) = 5.93, p < .001, d = -.96$



Distress from Psychotic Experiences

$t(41) = 4.53, p < .001, d = -.79$

Preliminary evidence for longitudinal beneficial effects on GPA, use of mental health care services, social functioning

# Feedback about the Resilience Training Workshop



# Living In Families with our Emotions (LIFE) program for adolescents



The LIFE workshop is conducted in-person in a community setting (library or school) or via Zoom

- **Screen** to identify adolescents (ages 11-14) who have low-level symptoms of psychopathology
- Provide an **8-week group intervention** to eligible adolescents, plus **3 parent sessions**: weekly sessions include didactics, experiential exercises focused on **emotion recognition and regulation**
- **Chelsea Healthcare Center Department of Pediatrics** – screened during annual well child visit

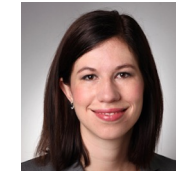
Co-PI:



Cori Cather



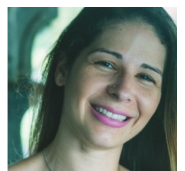
Annie Burke



Jacci Clauss



Kamila Bhiku



Ylira Pimental-Diaz

- **Boston-area middle schools** – school wide mental health screenings

Co-PI:



Randi Schuster



Annie Burke



Nicole DeTore



Yolie Whitaker



Tunde Aideyan



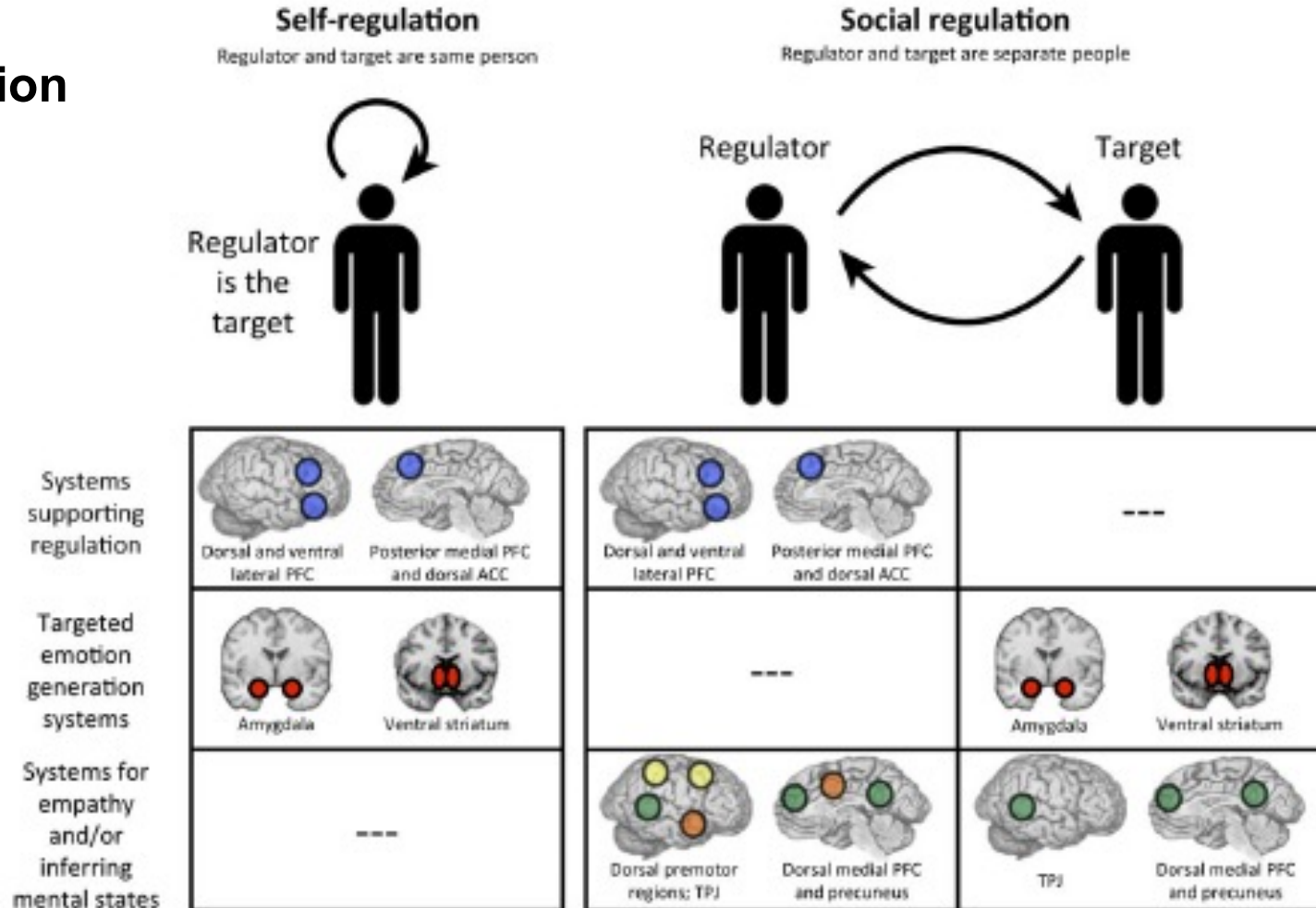
Lauren Utter



Drew Coman

# LIFE focuses on improving emotion recognition and emotion regulation

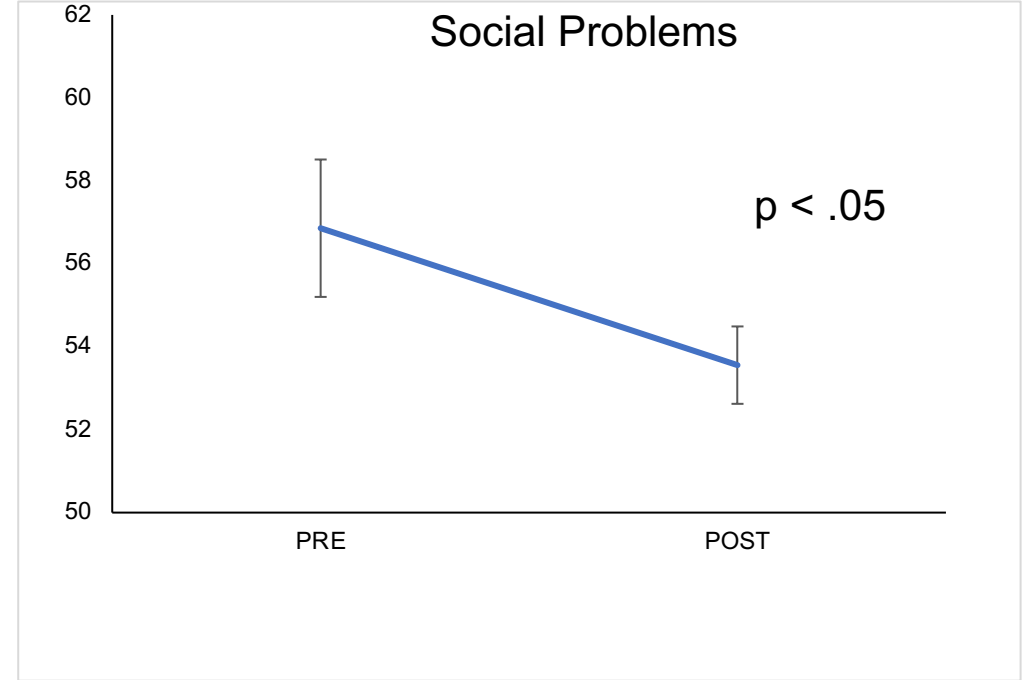
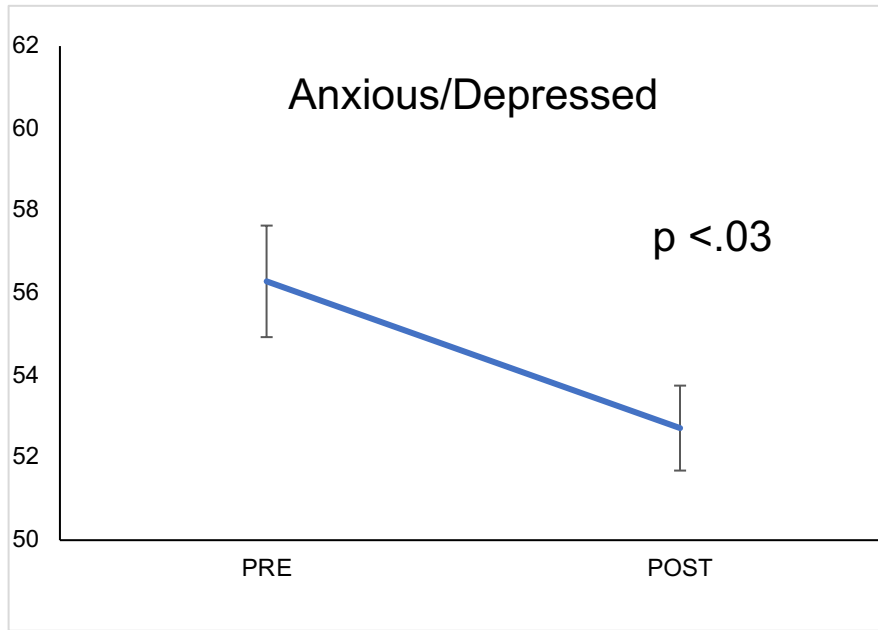
## The Social Regulation of Emotion Model





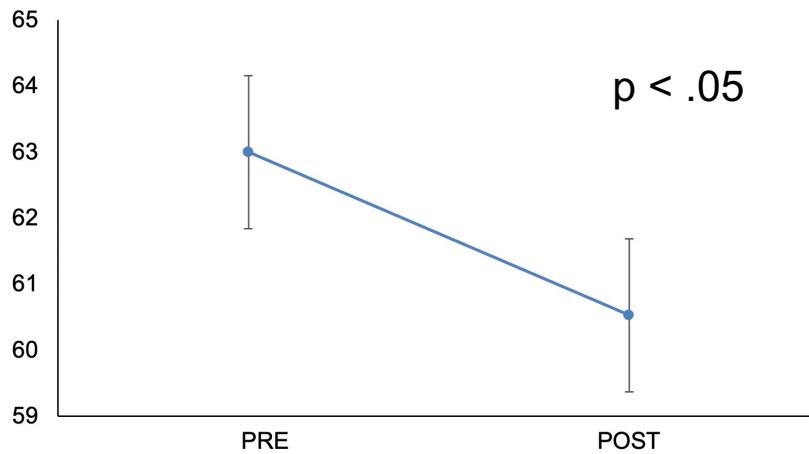


## Chelsea Pediatrics Cohort (Parent CBCL, n = 18):

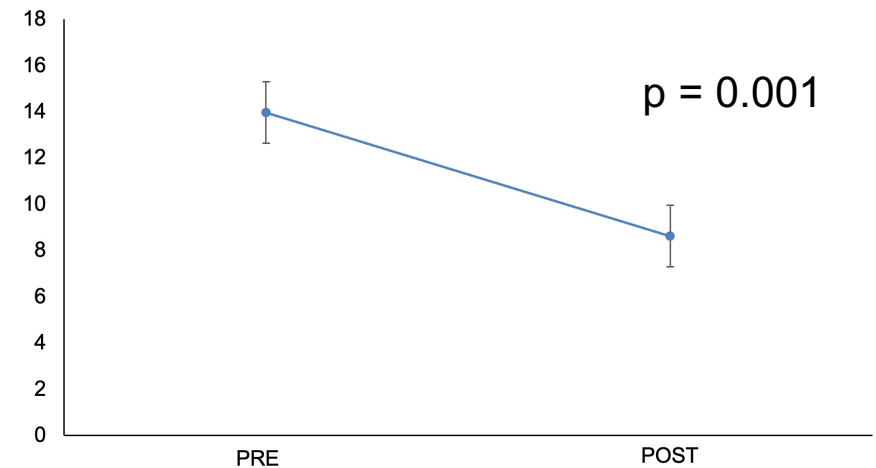


## Boston-Area Middle School Cohort:

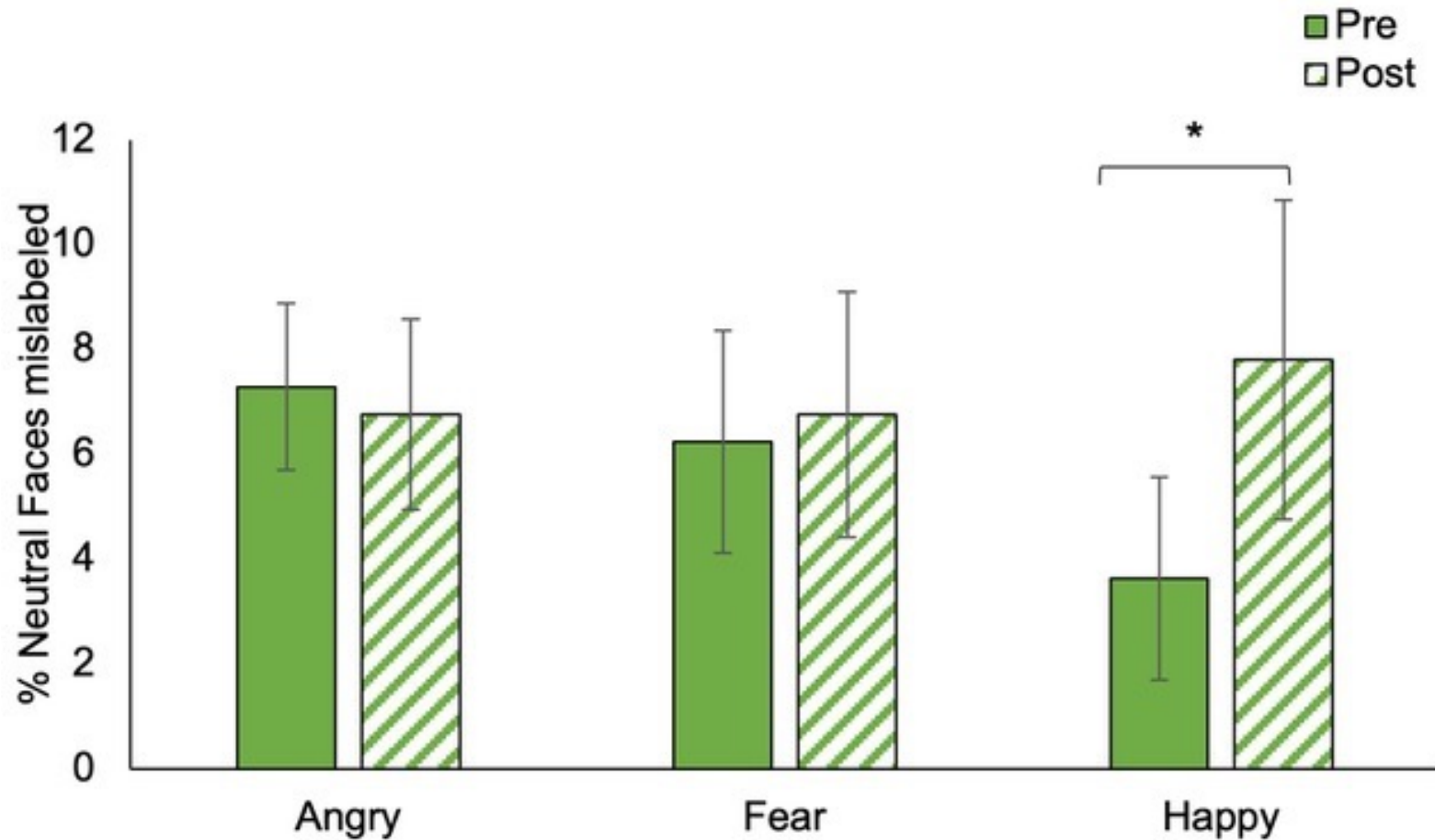
Depressive Problems (Child CBCL, n = 17)



Suicidality (CHRT, n = 23)



The adolescent participants of LIFE showed a post-intervention increase in a **positive social attribution bias** when labeling the emotions of neutral faces – they were more likely to say that a neutral facial expression was a happy one



# ROOM (Reconnecting with Ourselves and Others in virtual Meetings)

is a 6-session, group-based virtual reality (VR) based resilience training intervention that:

- 1) teaches people resilience-enhancing skills
- 2) gradually exposes people to being “near” others (as avatars) in a safe, controllable virtual environment



A fully immersive, interactive, multiplayer VR application designed by MGH RAPP and created by Virtually Better

<http://virtuallybetter.com>

Daphne





# Study of ROOM:

Significant Reductions in Depression, Anxiety and Emotional Reactivity

### Depression



PRE POST

$t(12) = 4.268, p = .001$

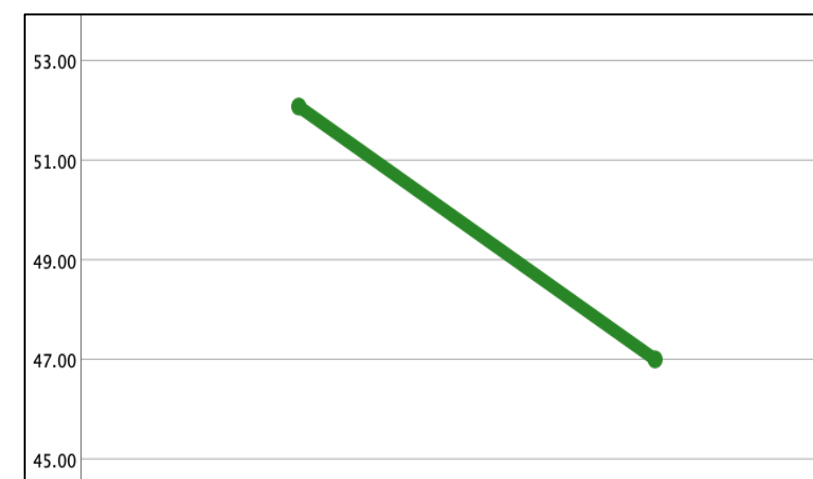
### Anxiety



PRE POST

$t(12) = 2.414, p = .033$

### Emotional Reactivity



PRE POST

$t(12) = 2.232, p = .045$

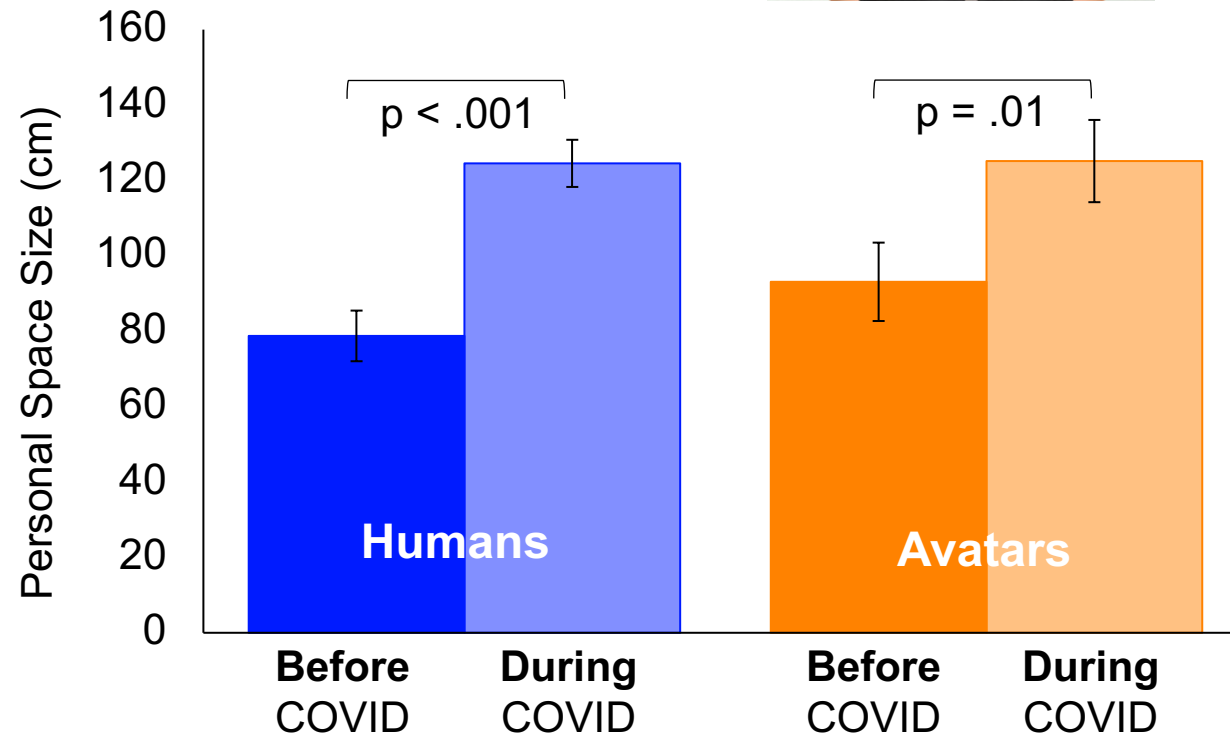
PRE = before ROOM, POST = after ROOM

# We need “personal space” from avatars, and needed even more during the pandemic than before

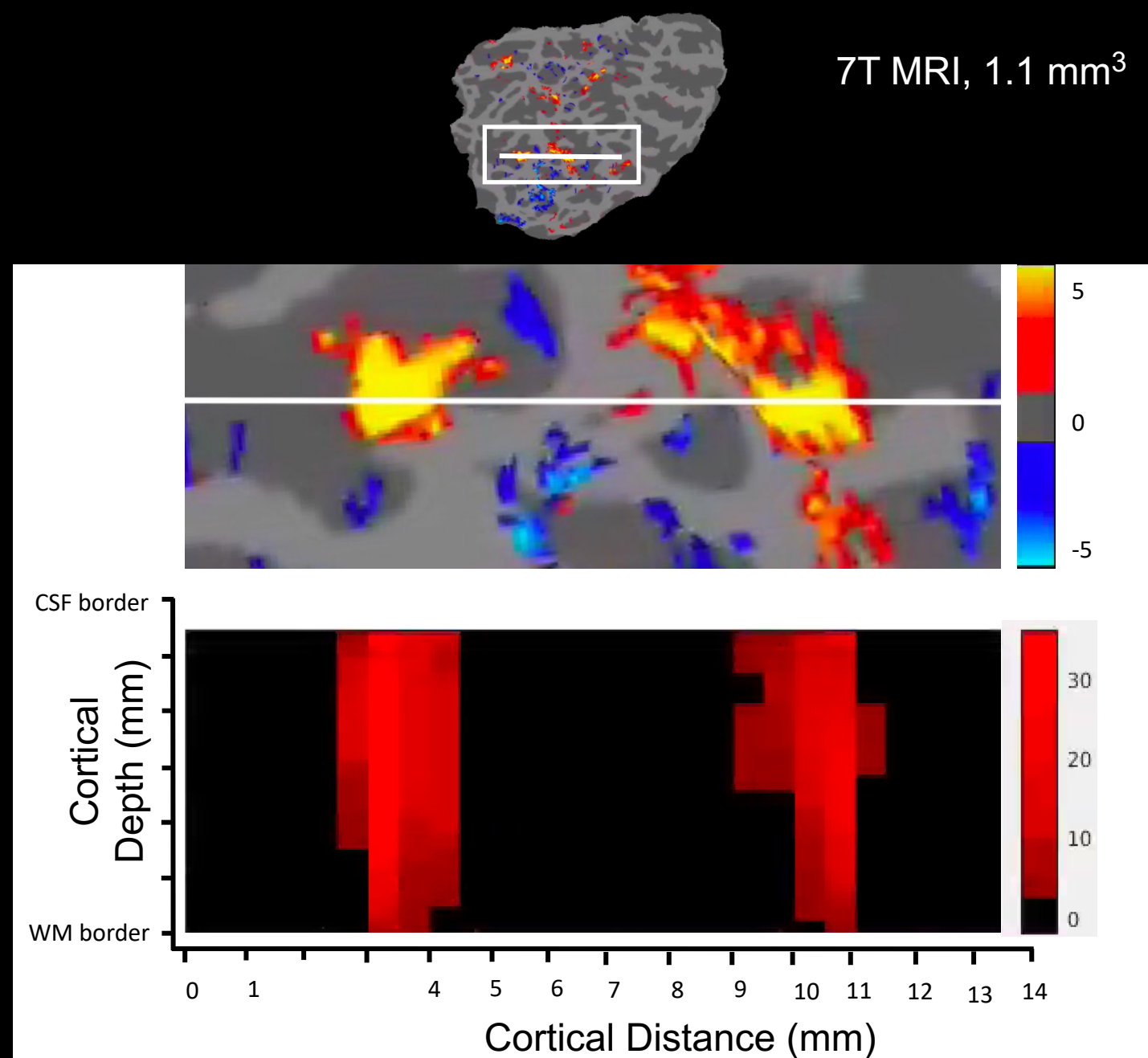
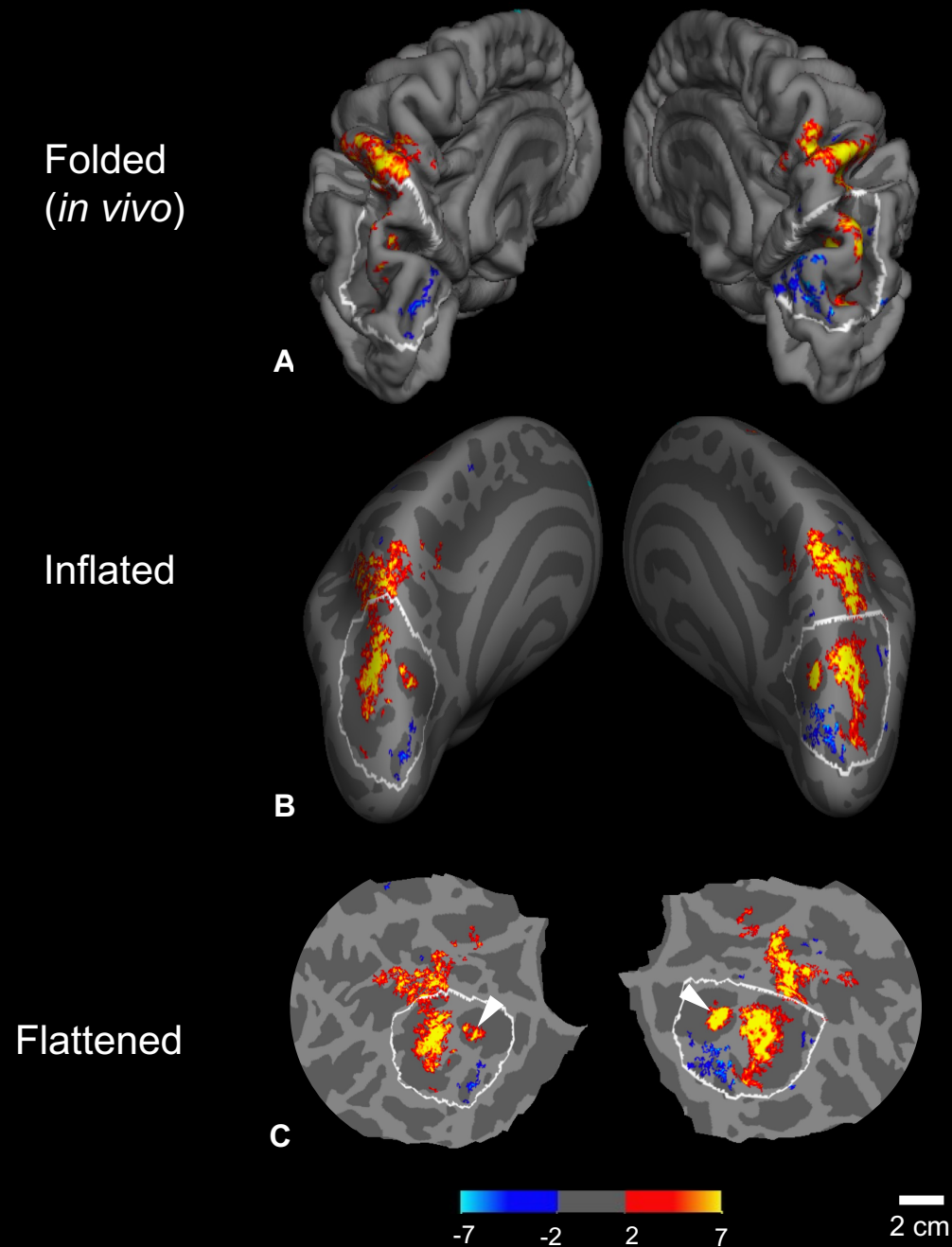
Human



Avatar



This may be because of the way our brain strongly responds to intrusions into our personal space



# Why learn to be resilient in virtual reality?

- Can meet with others and have a range of new experiences while in a comfortable, familiar location – **psychological barriers (the “energy of activation”)** for participation are **lower** for many, than for conventional treatment
- Can be **anonymous**, helping to combat effects of stigma
- Unlike other telemedicine approaches, it creates a strong simulation of **the physical experience of being with others**, fostering a sense of connection
- Unique possibilities for **innovative approaches that capture attention and the imagination**



# Thanks for listening and to an outstanding team and supporters

## The Resilience and Prevention Program



<https://www.resilienceandprevention.com>

## The Emotion and Social Neuroscience Laboratory



<https://holtlab.wixsite.com/esnlab>

### Funding sources:

MGH Research Scholars Program (ECOR/MGRI), MGH Neuroscience



GOOD SAMARITAN, INC.

