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# Impact of Adverse Childhood Events on Student Mental Health

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# Disclosures

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JAACAP – honorarium for Associate Editor

# Do I Really Need to Tell You About Adversity?





# Health Concerns

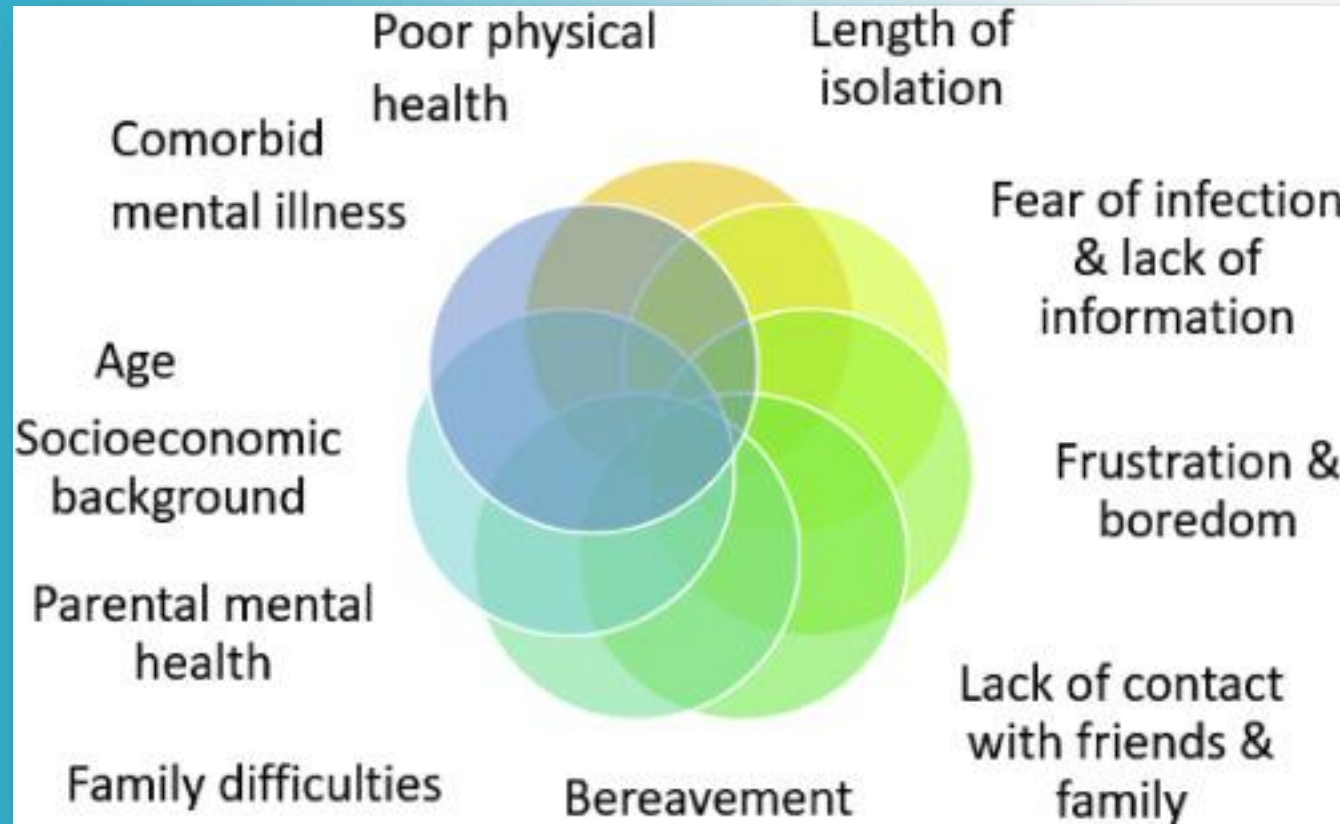
## 2020 Top 10 Child Health Concerns among All Parents

1	Overuse of social media	72%
2	Bullying/cyberbullying	62%
3	Internet safety	62%
4	Unhealthy eating	59%
5	Depression/suicide	54%
6	Lack of physical activity	54%
7	Stress/anxiety	54%
8	Smoking/vaping	52%
9	Drinking or using drugs	50%
10	COVID	48%



Margin of error:  $\pm 2$  percentage points and higher among subgroups  
Source: C.S. Mott Children's Hospital National Poll on Children's Health, 2020

# Indirect Effects of Pandemic on Children



Ashikkali, Carroll, & Johnson, 2020



# Educator Well-Being



**“We need to focus on our educator wellbeing. In addition to the stress of trying to learn a whole new way of implementing education, they are now even more in a position of taking on the secondary traumatic stress they are experiencing with their students.”**

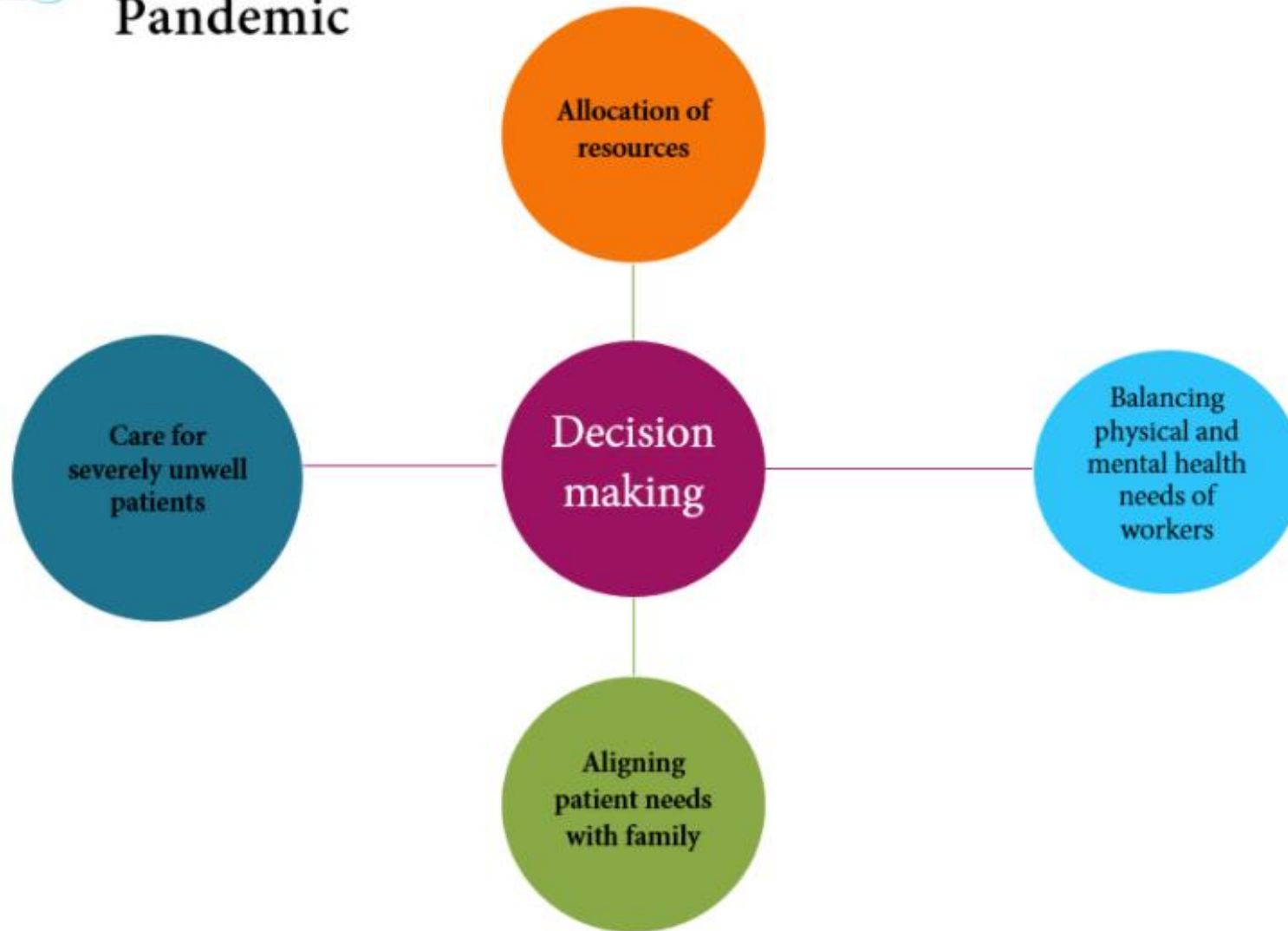
-Sharon Hoover, PhD  
Co-Director, National Center for School Mental Health

# There's a Name for the Blah You're Feeling: It's Called Languishing

The neglected middle child of mental health can dull your motivation and focus — and it may be the dominant emotion of 2021.



# Dilemmas for Health Care Workers during Covid-19 Pandemic



*Greenberg et al. Managing mental health challenges faced by healthcare workers during covid-19 pandemic BMJ 2020; 368 :m1211*



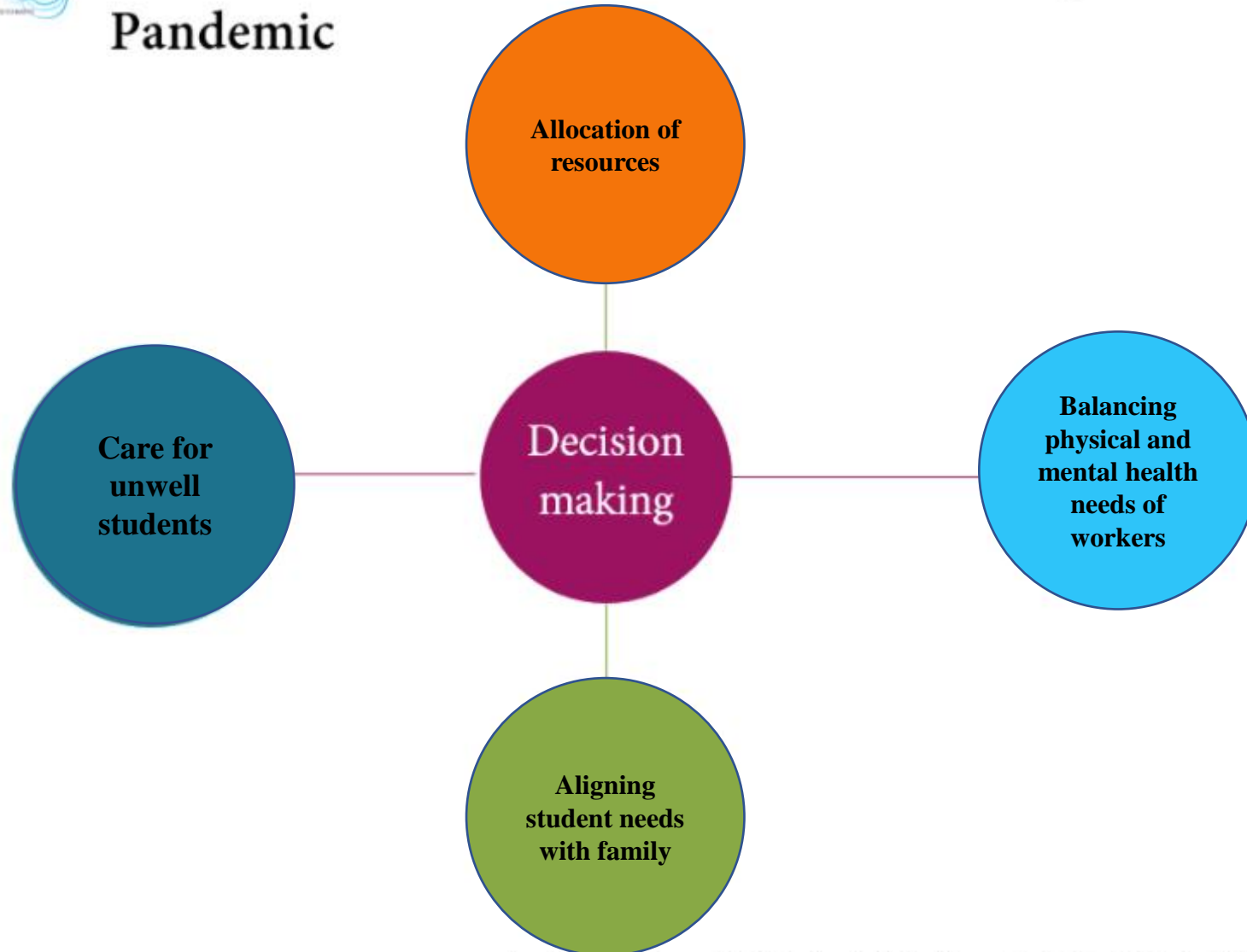


# Dilemmas for school personnel during Covid-19 Pandemic



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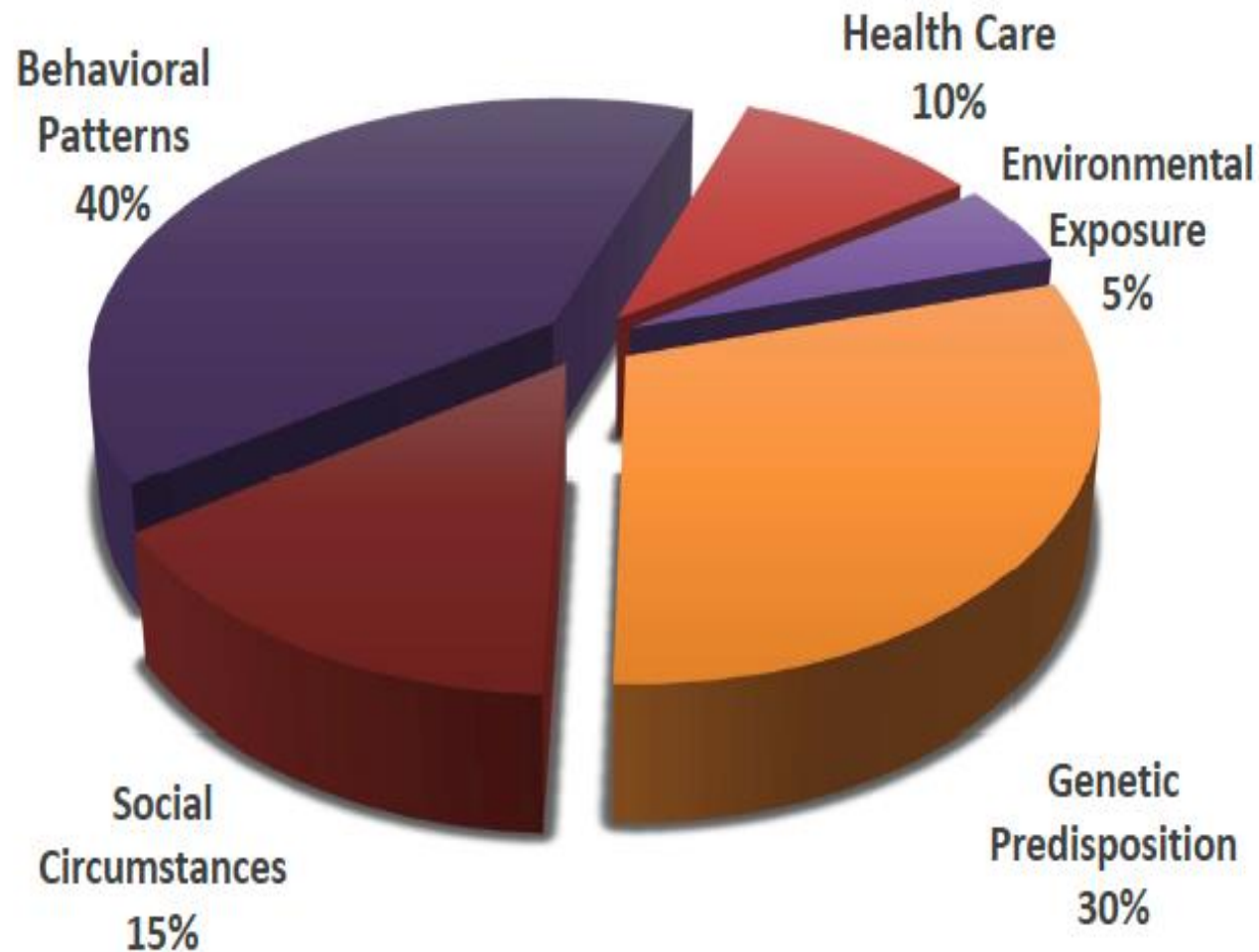
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*Greenberg et al. Managing mental health challenges faced by healthcare workers during covid-19 pandemic BMJ 2020; 368 :m1211*



# What Impacts Health Outcomes?



Source: Schroeder, Steven A. We Can Do Better – Improving the Health of the American People. N Engl J Med 2007;357:1221-8



# Adverse Childhood Experiences

## Adverse Childhood Experiences

Abuse, neglect, and familial or household challenges, such as divorce, separation, or incarceration of a parent, substance abuse or mental illness, depression, or suicide of a parent, and domestic violence



## Impact on Child Development

Neurobiological effects  
Psychosocial effects  
Health Risk Behaviors

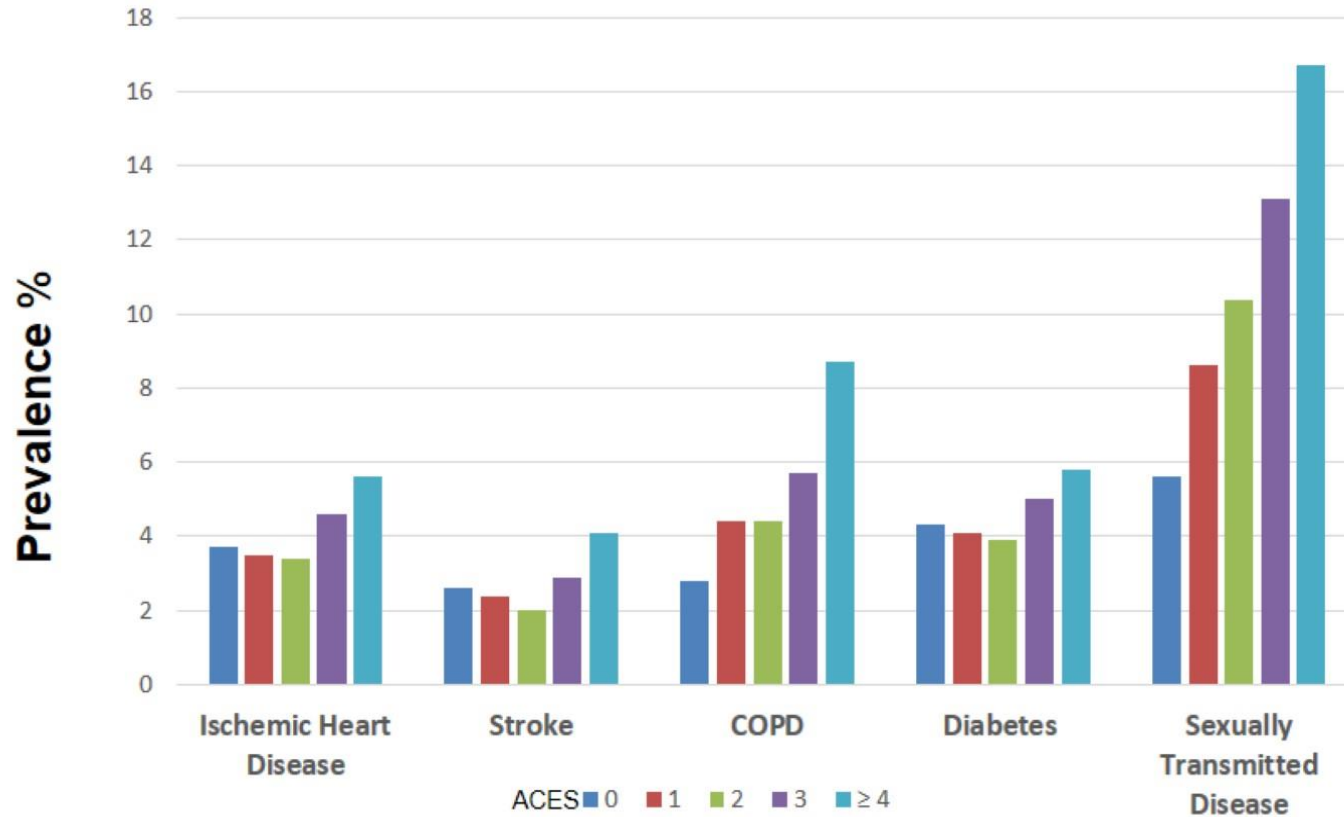


## Long-term Consequences

MDD, Suicide, PTSD, Substance Use Disorders  
Heart Disease, Cancer, Chronic Lung Disease, STIs  
Criminal behavior, homelessness, unemployment, parenting problems, shortened life



# Cumulative ACES & Chronic Disease<sup>1</sup>



<sup>1</sup>Felitti et al., (1998) American Journal of Preventive Medicine, 14:245-258.



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# RISK



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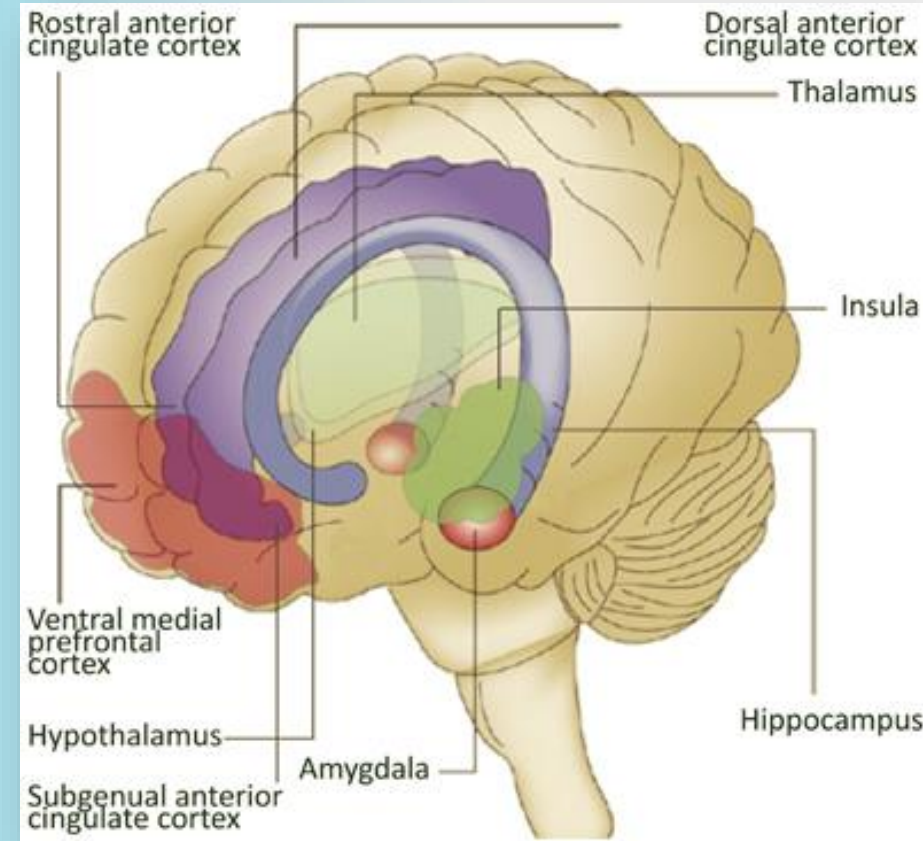
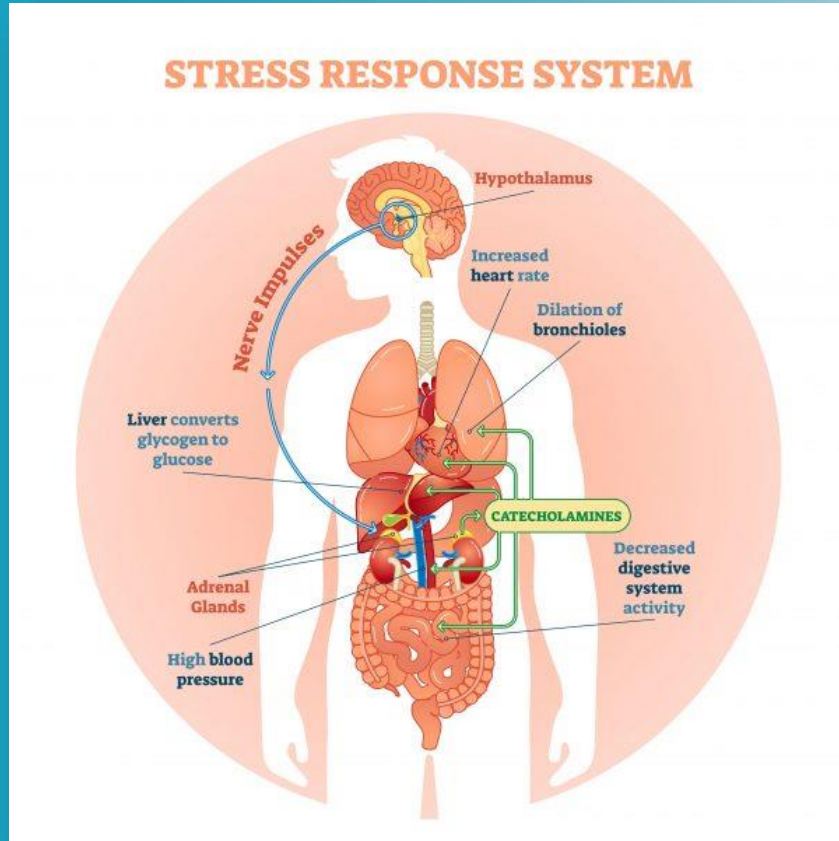


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[WWW.MGHCMC.ORG](http://WWW.MGHCMC.ORG)







It's not the  
leopard  
chasing us  
anymore...



NATION NOW

# Your cat may want to kill you, study says

**Mallory Davis** KUSA-TV, Denver

Published 5:52 p.m. ET Oct. 31, 2015 | Updated 11:51 a.m. ET Nov. 1, 2015



Remember, your lovable kitty is neurotic -- and has fangs. *Mallory Davis, KUSA-TV, Denver*



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# Effects of Cortisol in the Body

- Increase blood sugar
- Suppress the immune system
- Increase metabolism of fuels
- Decrease bone formation
- Worsens healing
- Enhances memory in short term, worsens over longer term

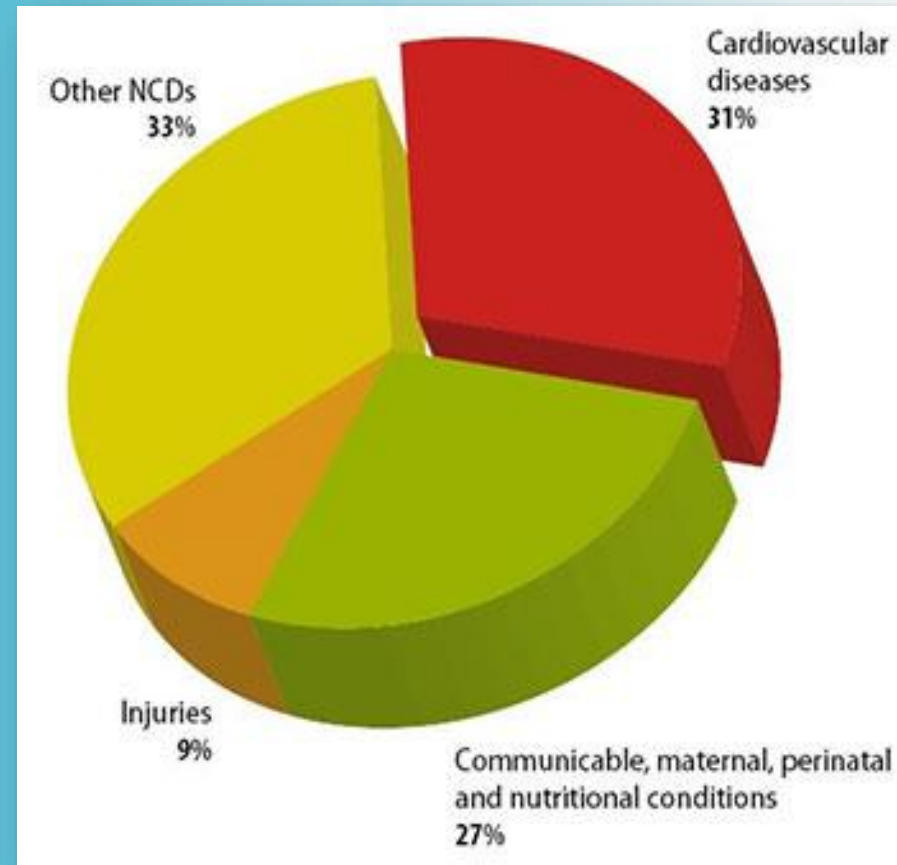


# Clinical Effects of Excess Cortisol

- Depression
- Hypertension
- Fatigue
- Sleep deprivation
- Migraine headache
- Acid Reflux
- Hostility and anger
- Arthritis
- Decreased immune response – more illness
- Decreased metabolism – obesity and overweight



# Common Causes of Death Worldwide

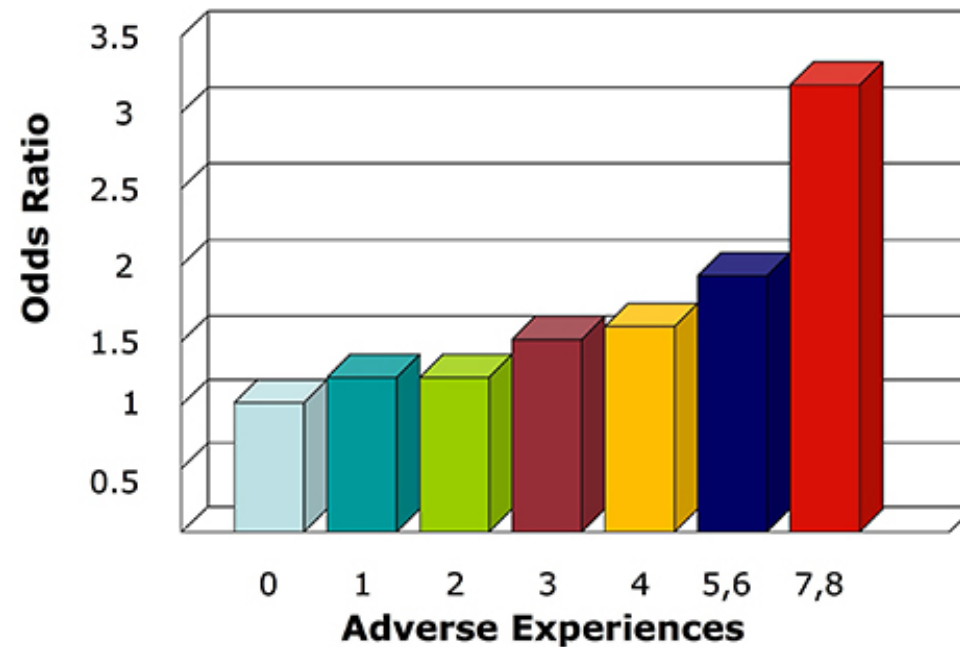


Global Atlas on Cardiovascular Disease Prevention and Control. Mendis S, Puska P, Norrving B editors. World Health Organization, Geneva 2011.



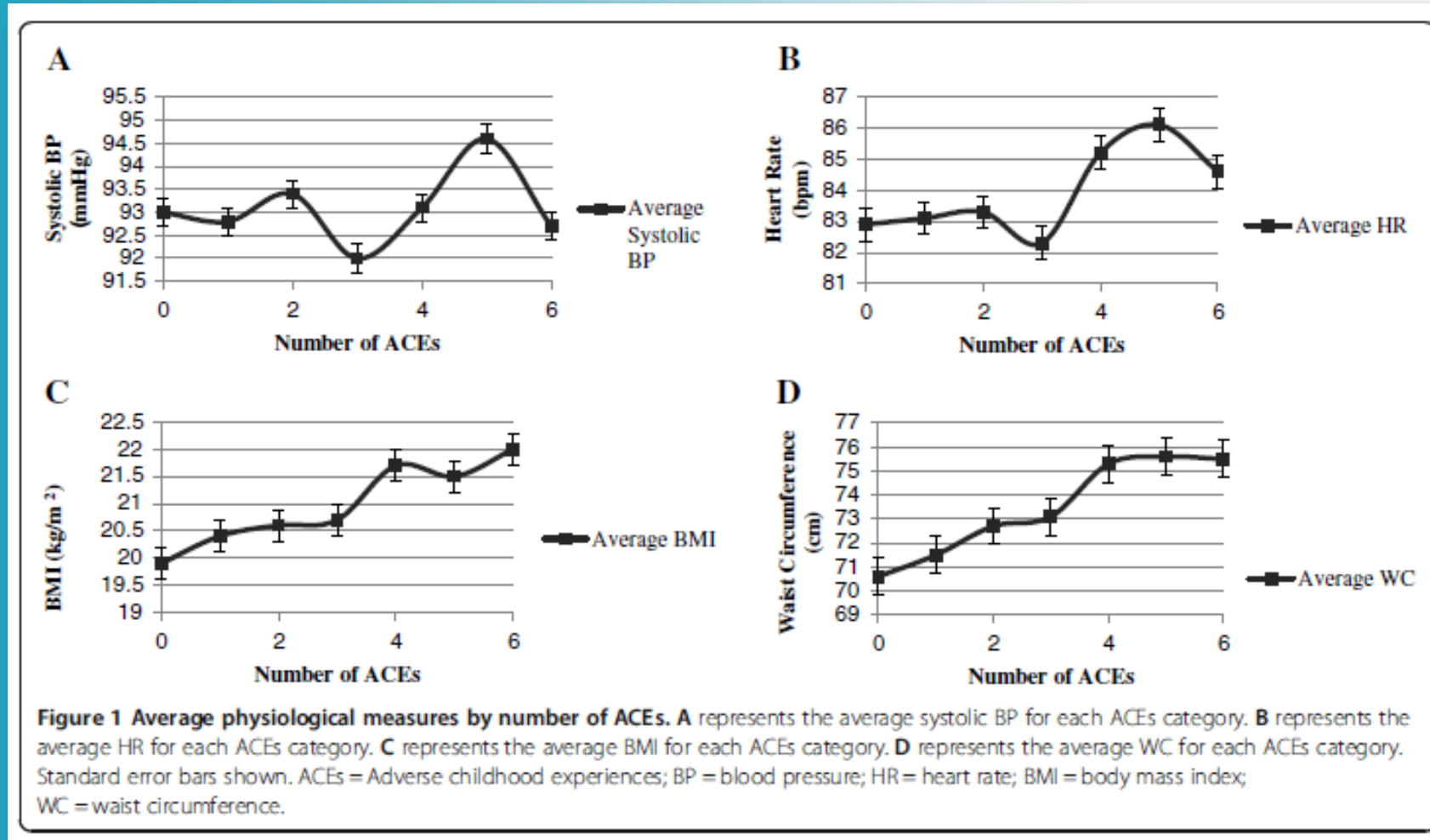
# Increasing ACEs Increases Risk for CVD

## Risk Factors for Adult Heart Disease are Embedded in Adverse Childhood Experiences



Source: Dong et al (2004). Credit: Center on the Developing Child.

# Pretty et al (2013)





# Mechanisms for Early Life Stress-induced CVD

- HPA axis/glucocorticoids and hypertension
  - Relatively unclear mechanism
  - Increase sodium and calcium intake within vascular smooth muscle and increase responsiveness to angiotensin – both of these lead to more blood vessel constriction
  - There appears to be a heightened physiological response to future stressors as well

Murphy et al 2017





# Stress, Immunity, and Aging

- As people age, they are less able to mount an immune response
- Older adults less able to terminate cortisol response to stress – chronic cortisol release leads to unregulated immune response
- Stress can lead to advanced aging...

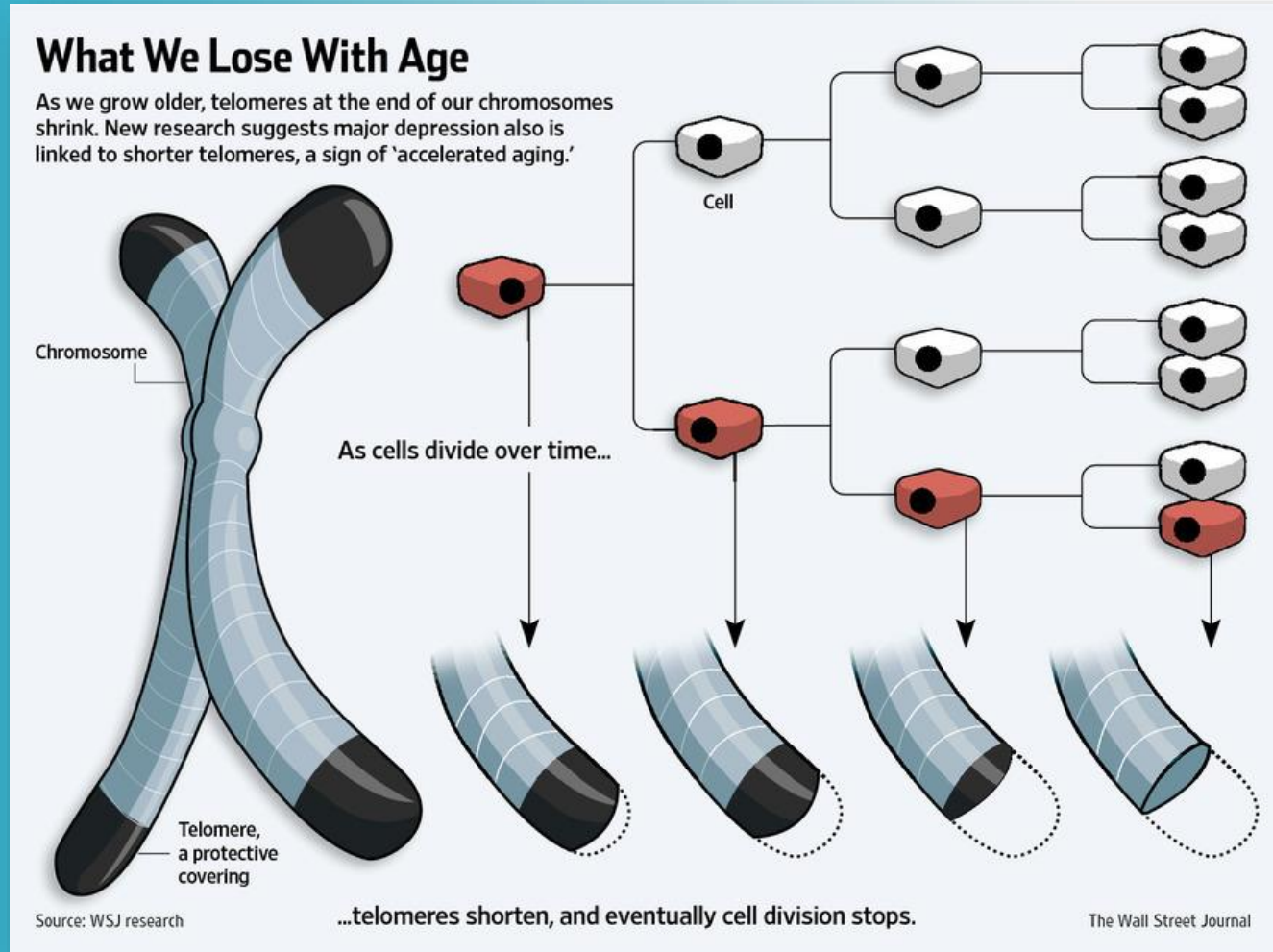


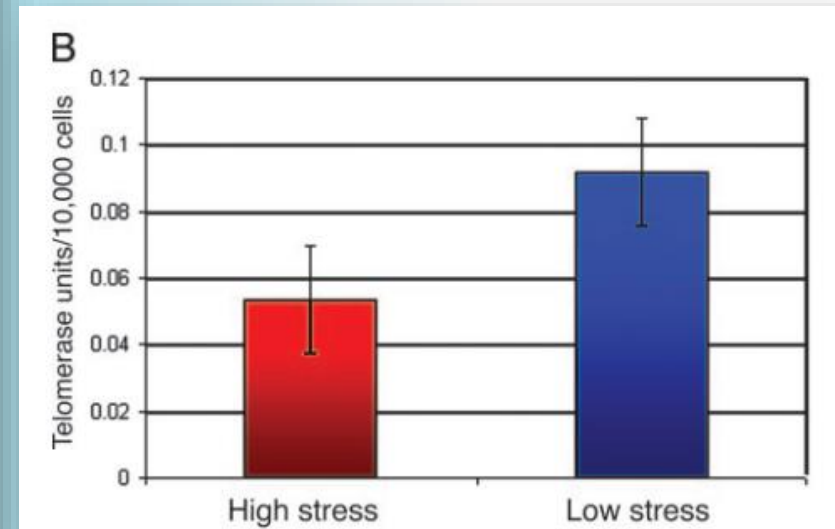
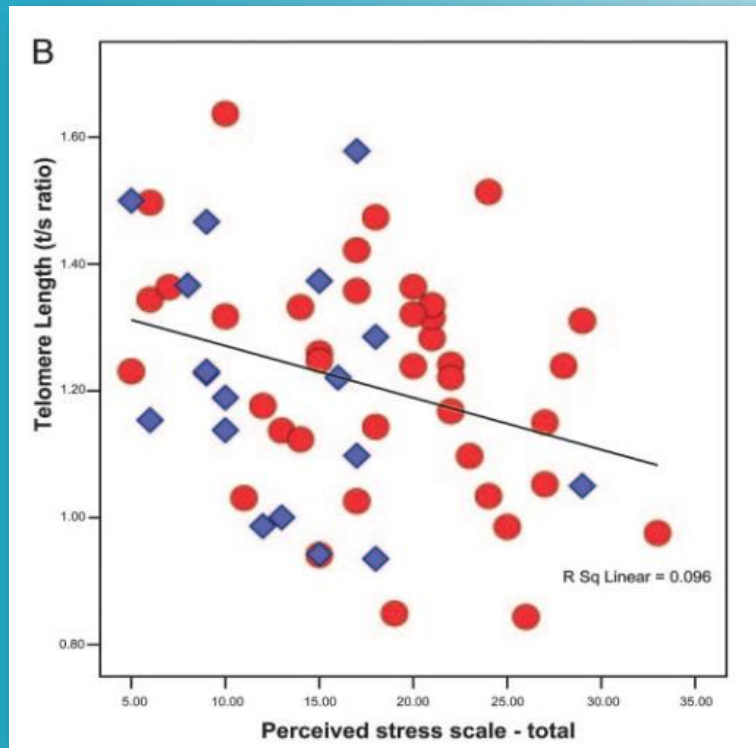
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# Telomere Shortening





Epel et al (2004)



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# RESILIENCE



# Resiliency



# Resilience

- The experience of serious risk and a relatively positive outcome despite those experiences (Rutter 2006)



# Positive Effects of Stressful Life Experiences

- There is a paradox that, for some people, there are positive effects of even the most traumatic events
  - Vietnam veterans
  - Individuals who have been traumatized
  - Cancer survivors
  - Individuals infected with HIV
  - Death of a loved one

WHY?





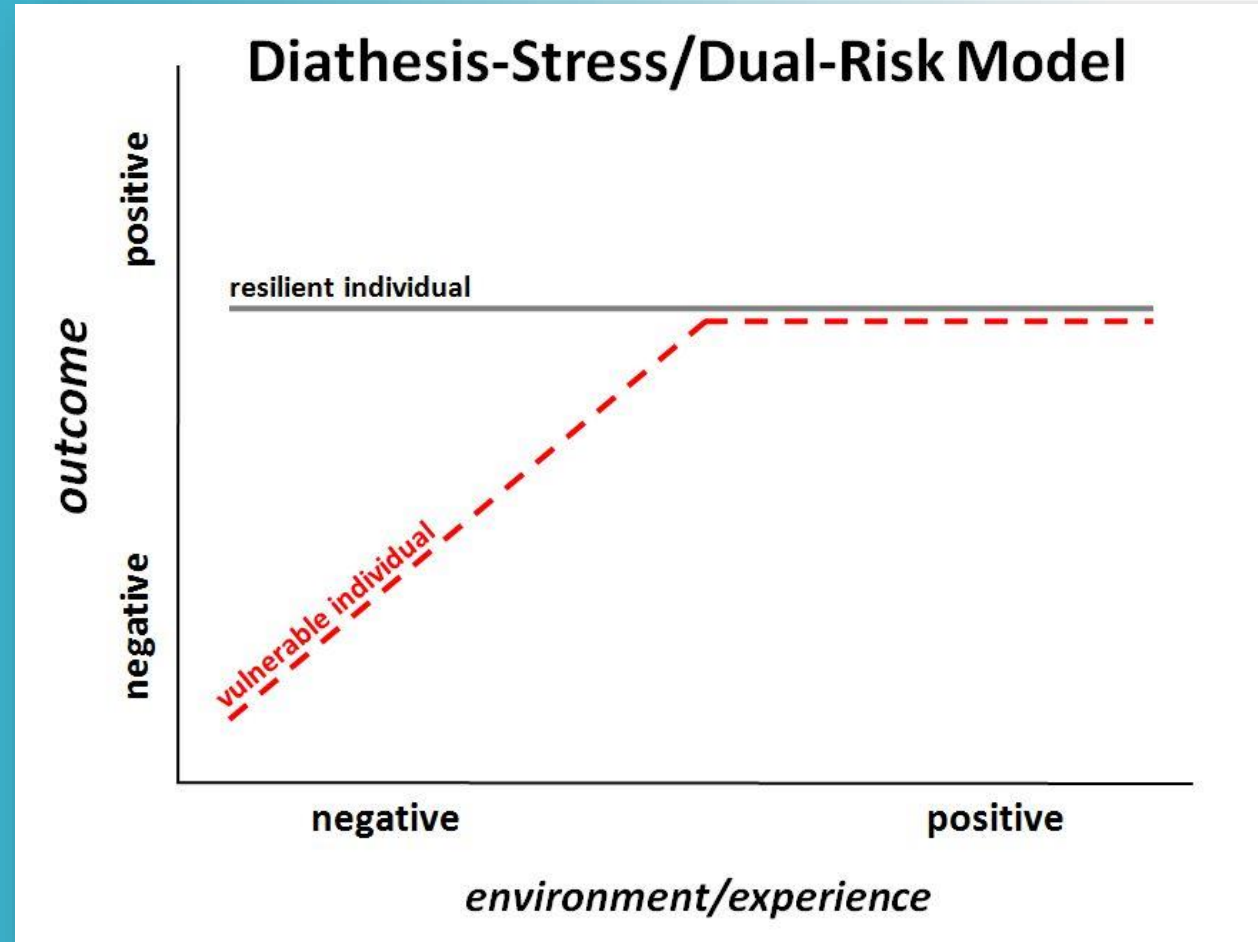
# Are You a Dandelion or an Orchid?



W. Thomas Boyce, MD

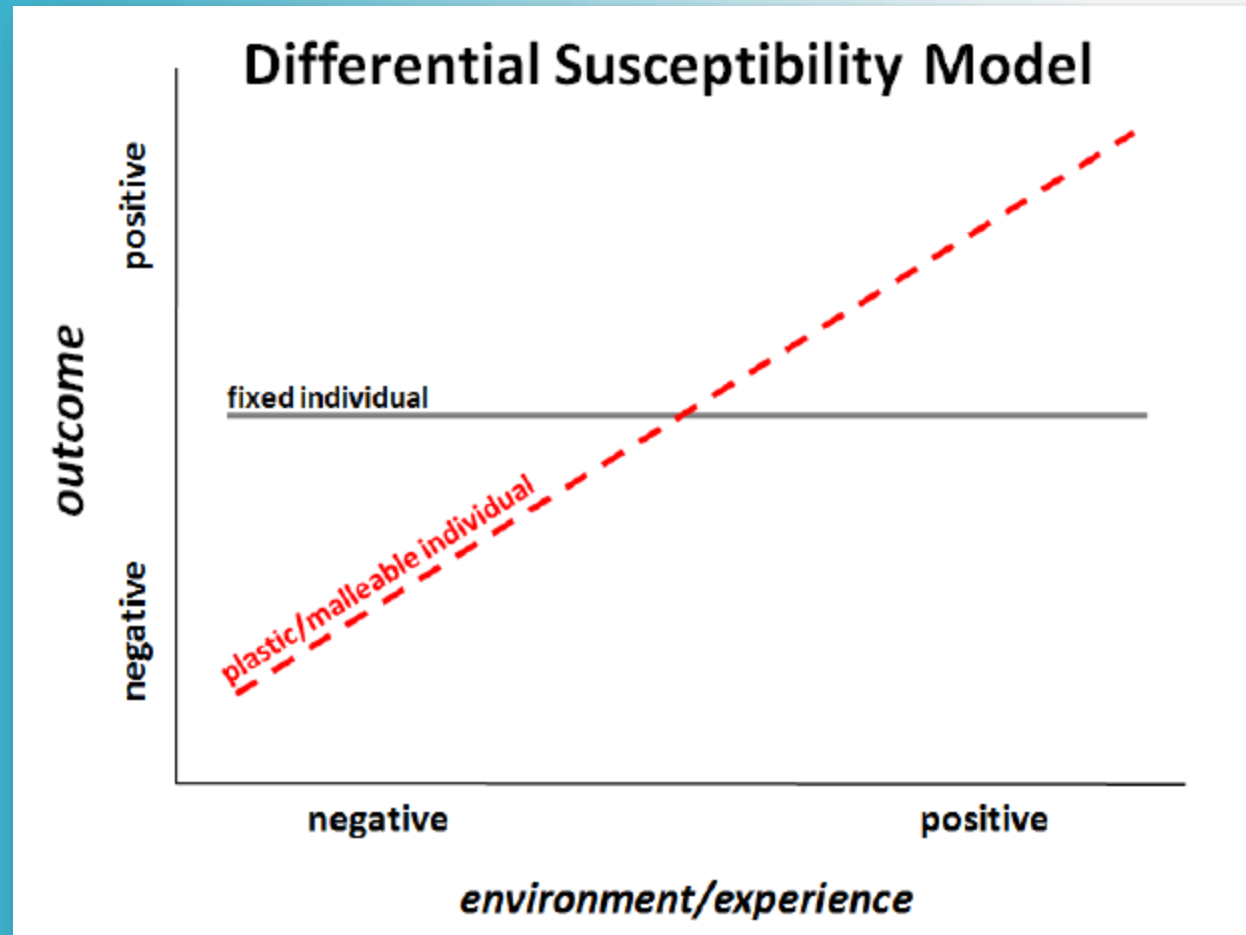


# Diathesis Stress Model

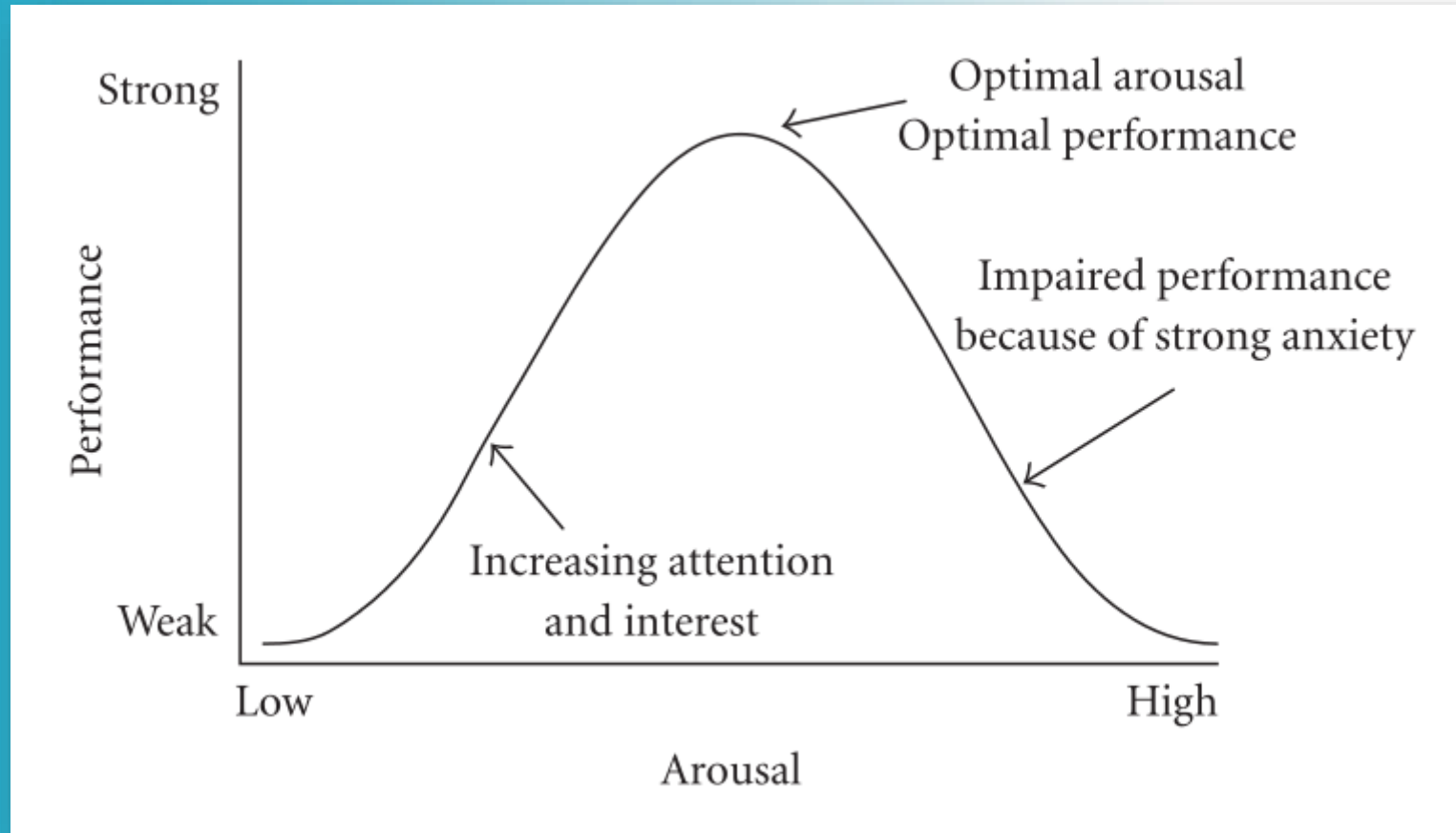




# Differential Susceptibility Model



# Stress and Resilience



Yerkes and Dodson (1908)



# Stress Inoculation

- Squirrel monkeys exposed to repeated, short maternal separations show some immediate signs of distress, which are slowly reduced over time.
- These monkeys show diminished HPA activation in response to subsequent acute stressors and are better able to regulate negative emotional arousal to later acute stressors.



# Three concepts that people perceive as resulting from stressful life events

- Changes in self-concept
- Relationships with social networks
- Personal growth and life priorities



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# Benevolent childhood experiences

- Did you have...a care giver with whom you felt safe?
  - At least one good friend?
  - Any beliefs that gave you comfort?
  - At least one teacher who cared about you?
  - Likes school?
  - Good neighbors?
  - An adult who could provide you with support or advice?
  - Opportunities to have a good time?
  - Did you like yourself or feel comfortable with yourself?
  - A predictable home routine?
- Higher levels associated with less PTSD and stressful life events in pilot study with pregnant women (Narayan, Rivera, Bernstein, Harris, Lieberman; 2018)



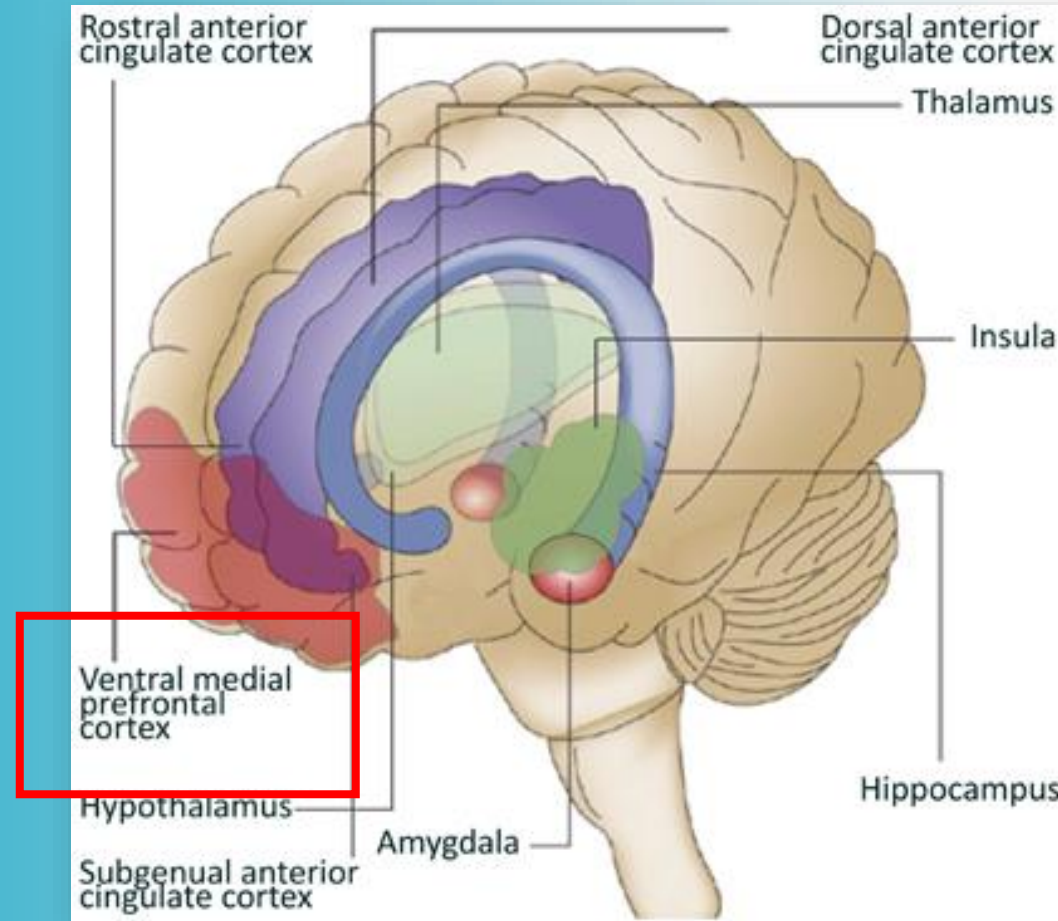


# Circuits of Resilience

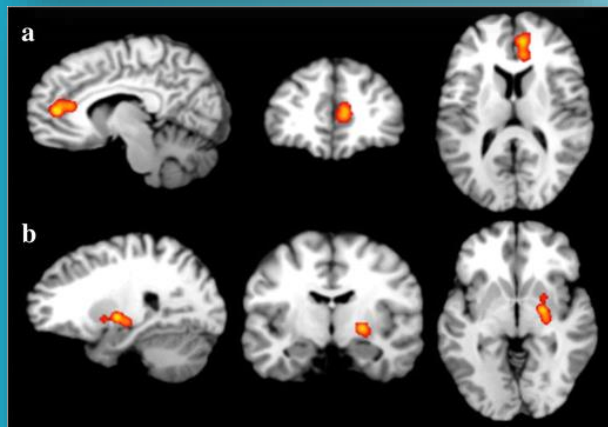
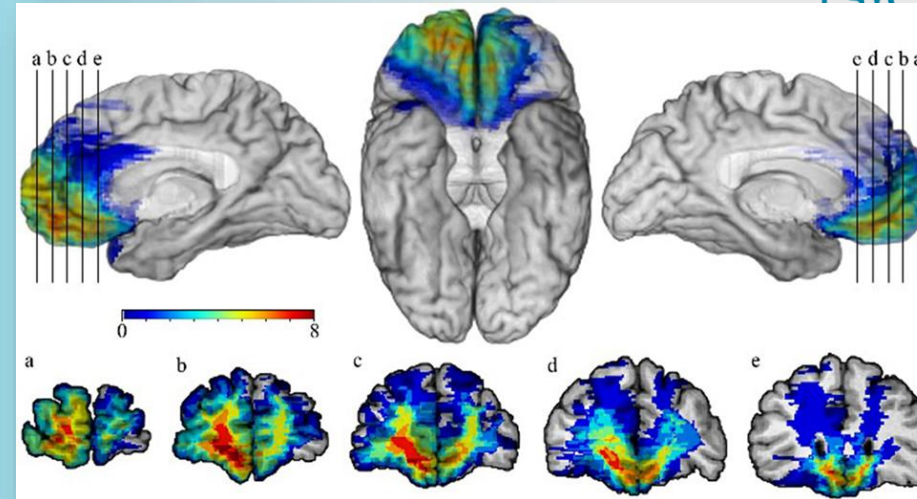
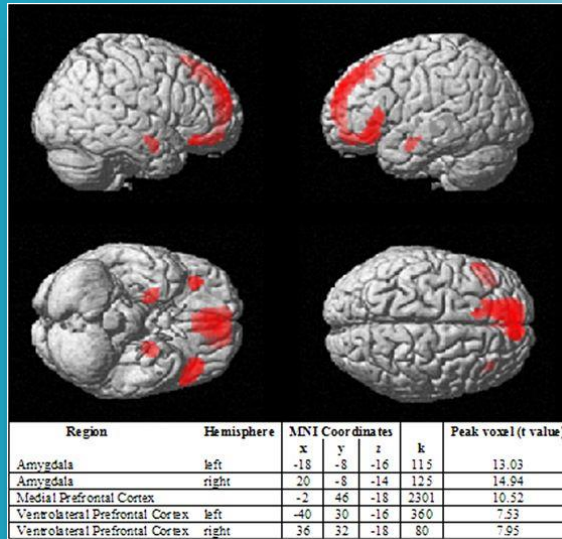


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van der Werff et al (2013)



Ways that we “exercise” the ventromedial prefrontal cortex:

- Physical Exercise & sports
- art, music, dance
- reading
- Expressing gratitude
- Fostering positive relationships/intimacy
- Mindfulness



# Conclusions

- Adverse Childhood Experiences are associated with multiple poor outcomes in adulthood
- Part of this association is explained by the stress response and its effects on the body
- A little stress is good for you and some people are better able to deal with stressors than others
- To help yourself (and those around you) increase your (their) resilience and lessen the effects of ACEs, encourage exercises that will enhance the mPFC including mindfulness, exercise, reading, music, etc.,



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# Thank you!

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