

# Loneliness vs. Wisdom in the Era of Pandemics

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# From 2020, the Year of Living Dangerously To 2021, the Year of Living Wisely



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# United Nation's Decade of Healthy Aging (2021-2030)



(Dixon, A. The United Nations Decade of Healthy Ageing requires concerted global action. *Nat Aging* 1, 2 (2021). [doi.org/10.1038/s43587-020-00011-5](https://doi.org/10.1038/s43587-020-00011-5))

# OUTLINE

- **Loneliness and Social Isolation**
- **Wisdom, Aging, and Evolution**
- **Loneliness versus Wisdom**
- **Enhancing Wisdom**



## Loneliness vs. Social Isolation

- **Loneliness** = Subjective distress caused by a feeling of being alone (perceived isolation)
- **Social Isolation** = Inadequacy of social relationships (objective isolation)

(Cacioppo and Cacioppo, 2018)

# Loneliness is a Grand Challenge for the Society



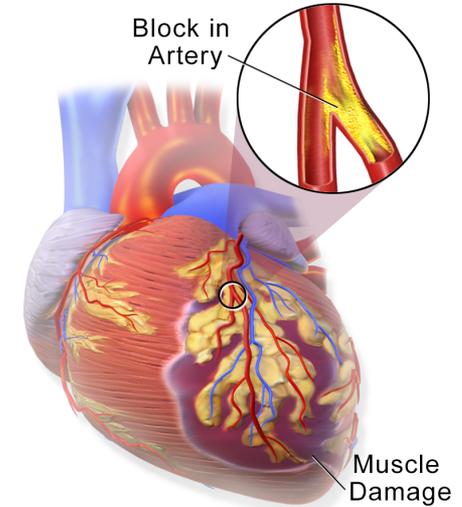
A silent killer; increases odds of mortality by 30% - as dangerous as smoking and obesity (Holt-Lunstad JM, et al., 2015)

In the US, 162,000 deaths per year are attributable to loneliness – more than those secondary to lung cancer or stroke  
(Agency for Healthcare Research and Quality, 2019)

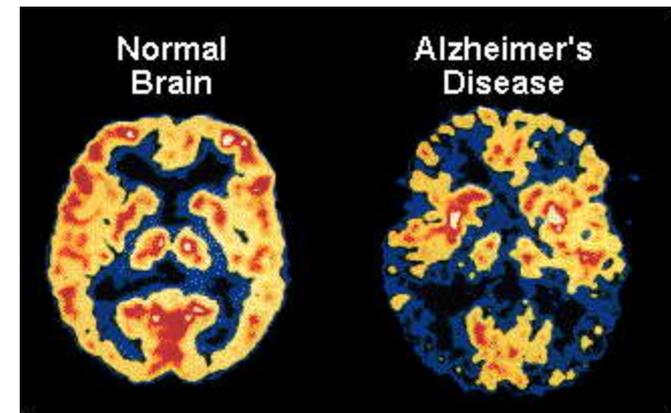
The UK and Japan governments include a Minister of Loneliness

# Loneliness Increases the Risk for Major Diseases

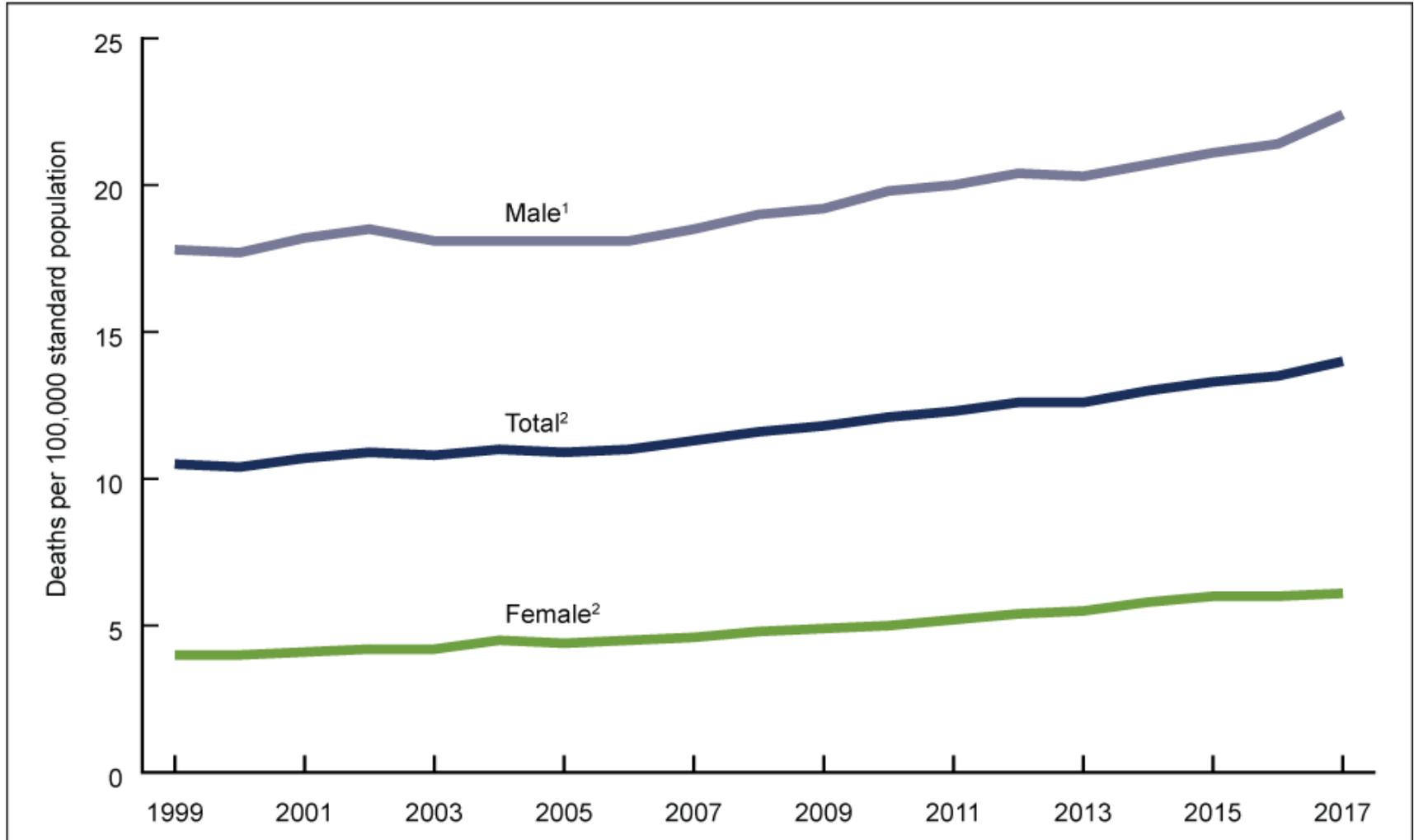
- Heart disease
- Diabetes
- Obesity
- Major depression with suicide
- Opioid and alcohol use
- Anxiety disorders
- Alzheimer's disease and other dementias



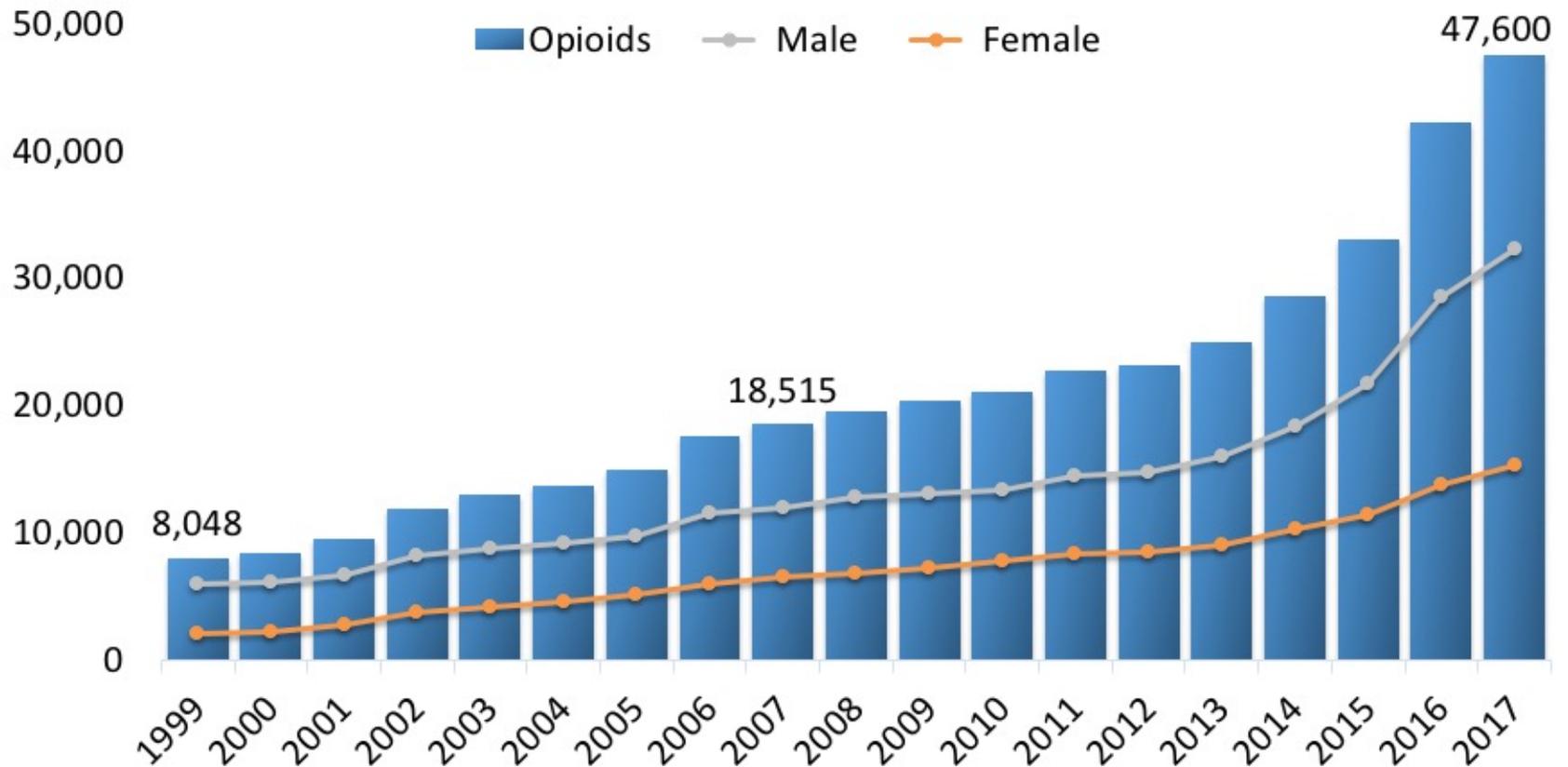
Heart Attack



# US Suicide Rates Increased by 33% in 2 Decades (1999 – 2017) (CDC Statistics)

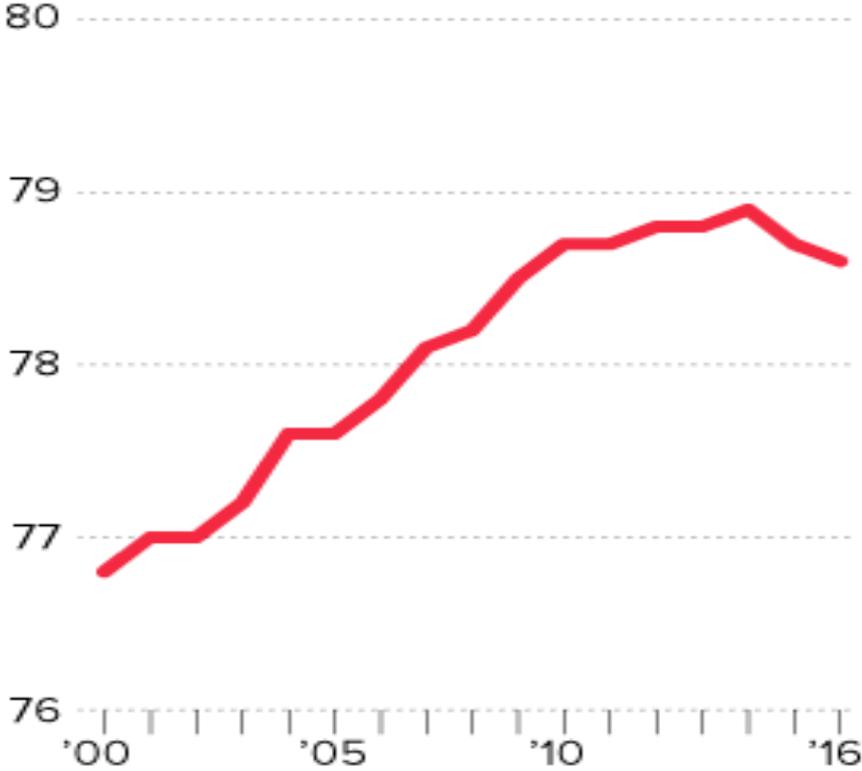


# Mortality from Opioid Abuse (1999-2017)



Source: : Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2017 on CDC WONDER Online Database, released December, 2018

# Recent Pre-Covid Decline in Average US Lifespan



# Genetic Basis of Loneliness



GWAS analyses for loneliness in UK Biobank study (N=452,302)

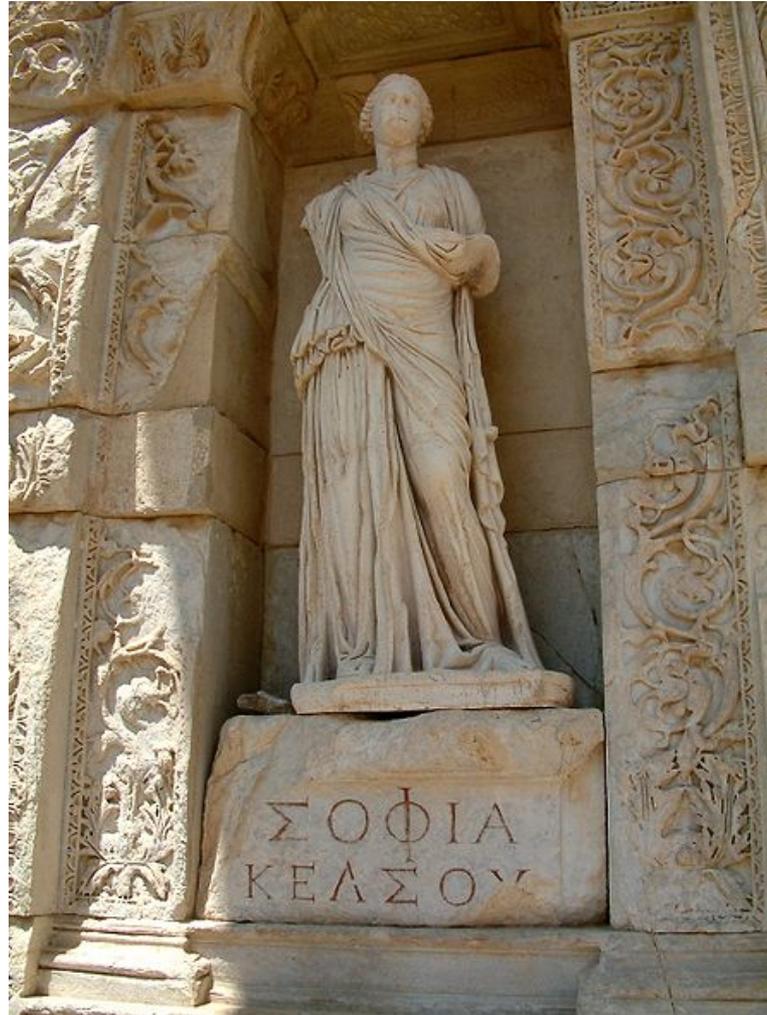
- Loneliness is a modestly (37%-55%) heritable trait with a highly polygenic architecture
- Genetic predisposition toward loneliness predicts cardiovascular, metabolic, and psychiatric disorders (depression, dementias)

(Day, FR, et al. Nat Commun. 9:2457, 2018;  
Gao, J, et al. Neuropsychopharmacology. 2017;42:811-8218)  
Abdellaoui, A, et al., bioRxiv, Nov. 14, 2018)

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# SOPHIA: Personification of Wisdom



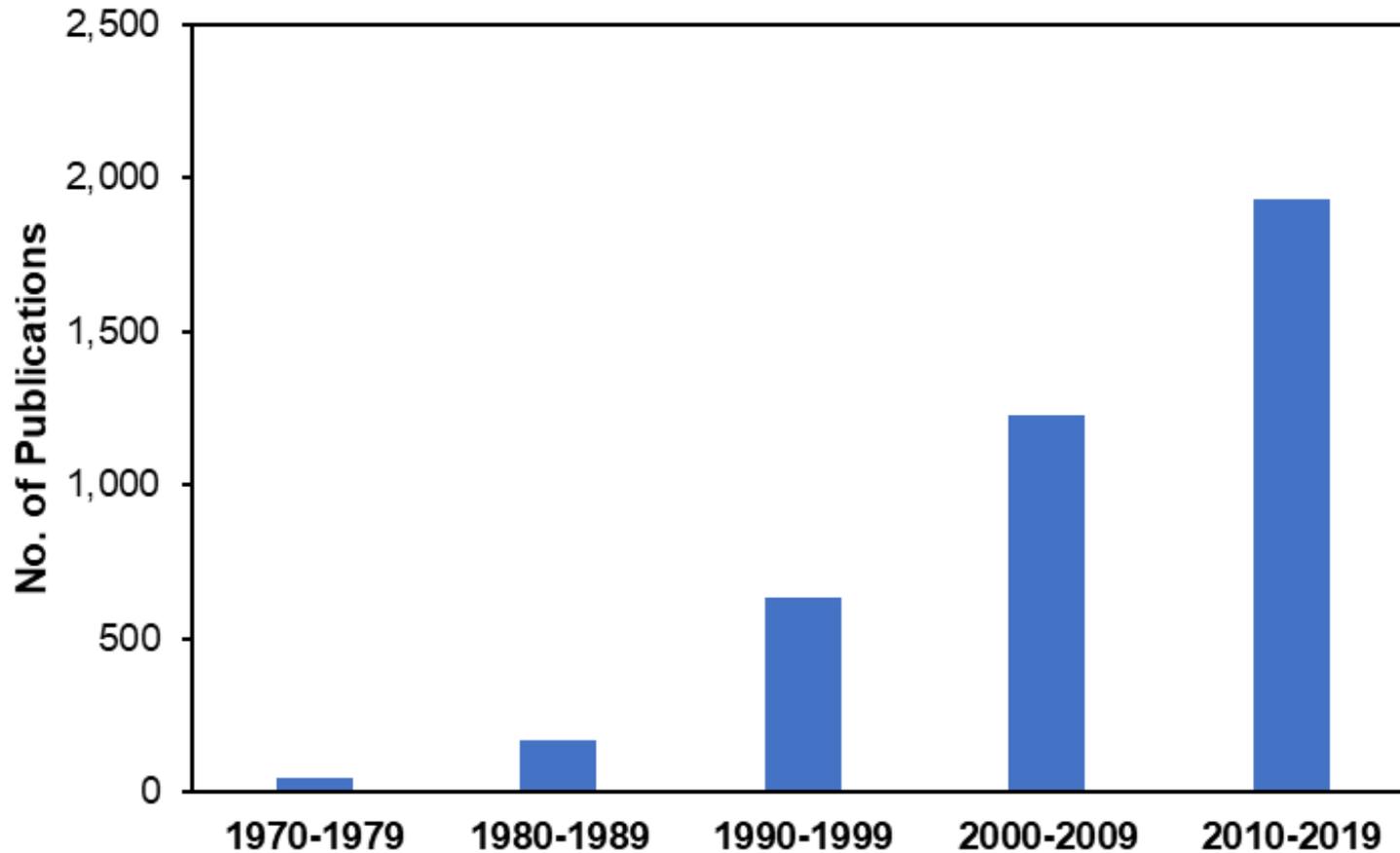
# “Fuzzy” Constructs Long Neglected by Hard Sciences

- **Consciousness**
- **Emotion**
- **Stress**
- **Resilience**
- **Wisdom?**



# Published Papers on “Wisdom” by Decade

(Jeste & Lee, Harvard Rev Psych, 2019)



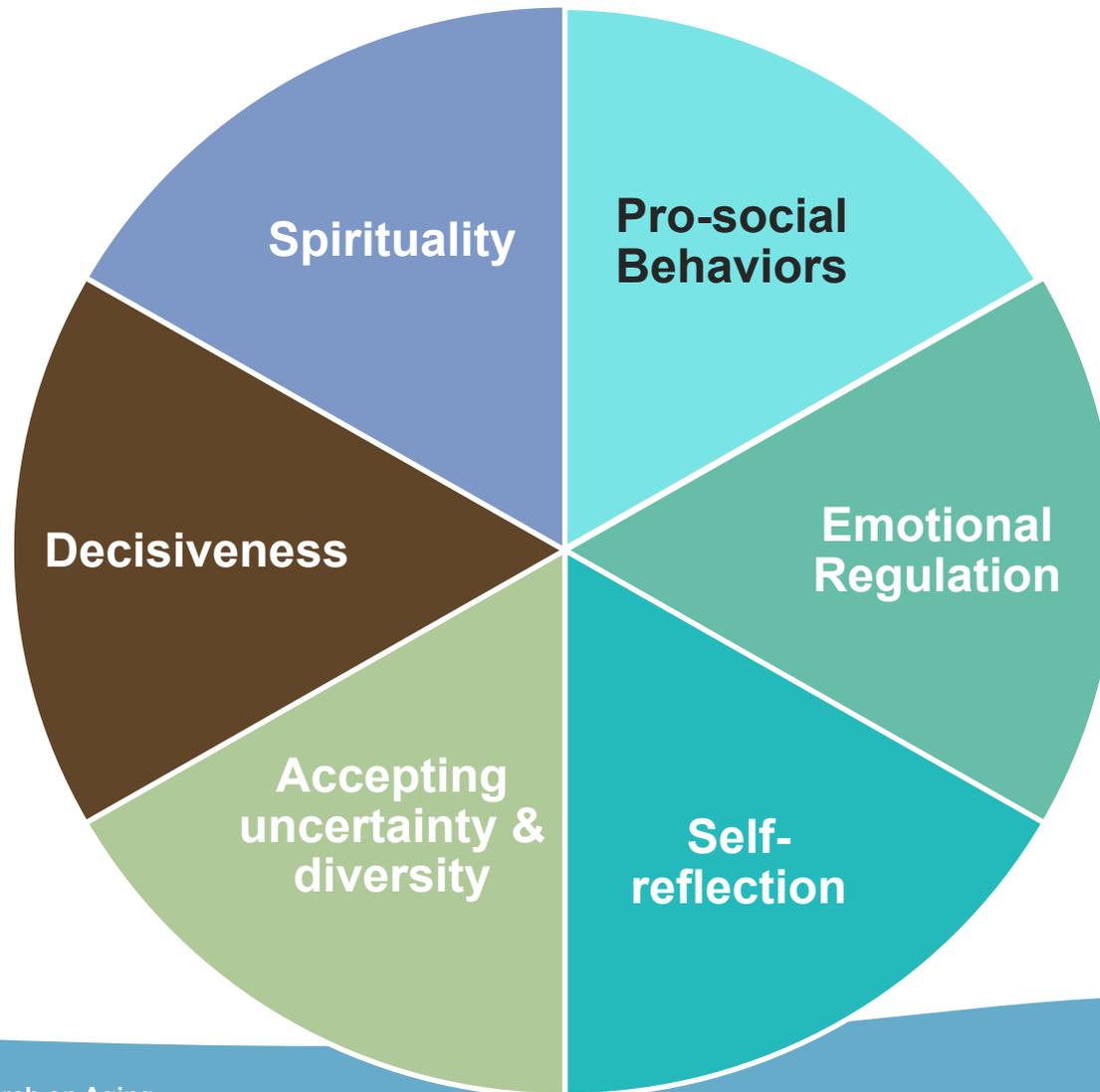
# Defining Wisdom

- A) Wisdom in the scriptures: Mixed-methods Qualitative-Quantitative research
- B) Review of empirical literature on wisdom (which started in the mid-1970s)
- C) International Expert Consensus using Delphi (Rand Panel) method

## Striking similarities in conceptualization of wisdom

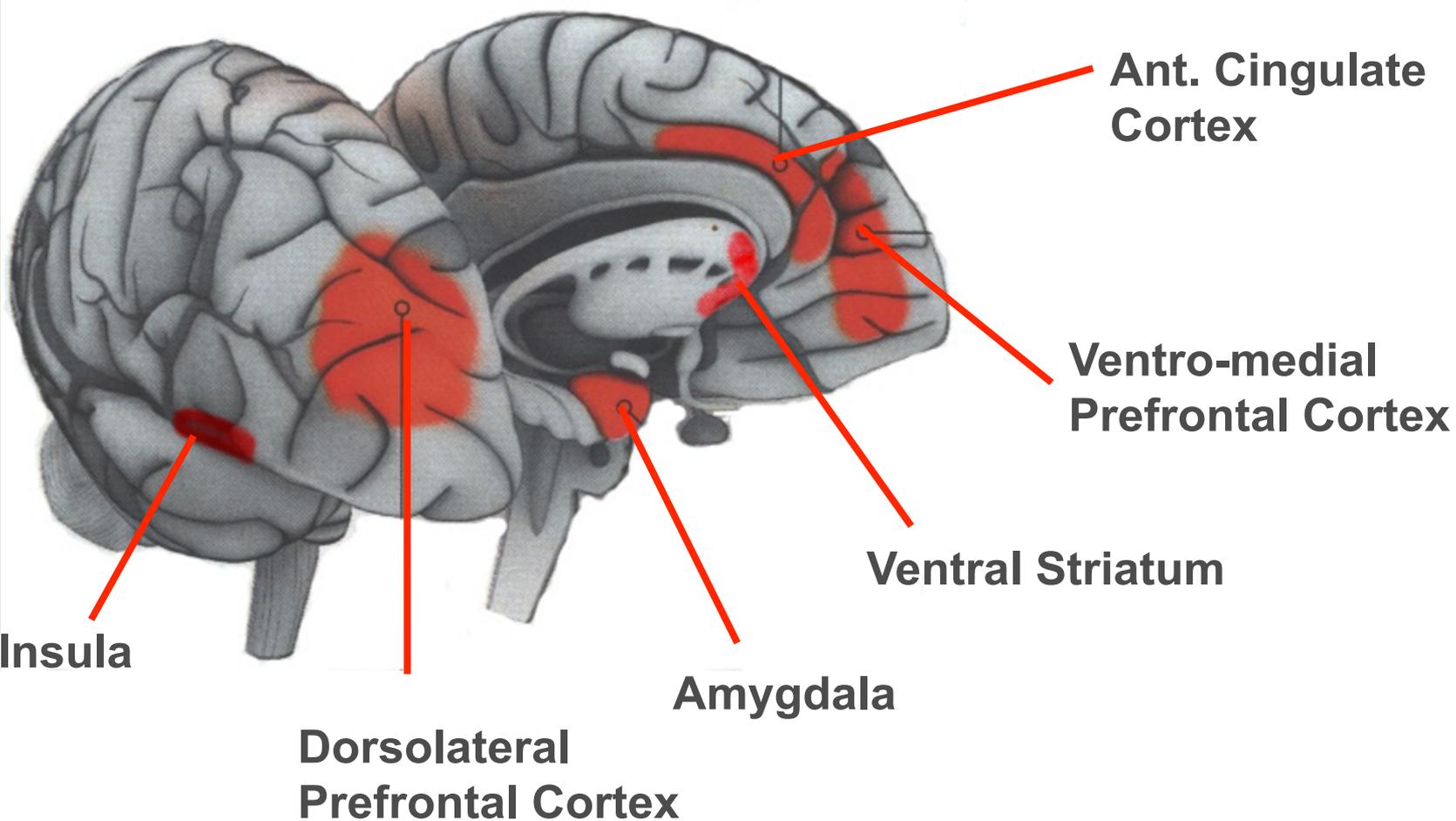
(Jeste & Vahia, Psychiatry, 2008; Meeks & Jeste, Arch Gen Psychiatry, 2009; Bangen et al. Am J Geriatr Psychiatry, 2013; Montross, et al., Int'l Psychogeriatrics, 2018)

# Wisdom: A Multi-component Trait



# Brain Regions Involved in Wisdom

(Meeks & Jeste, Arch Gen Psych 2009)



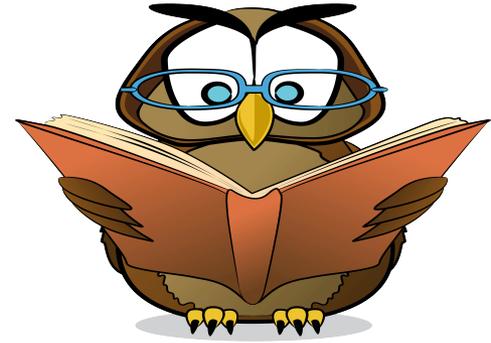
# San Diego Wisdom Scale or Jeste-Thomas Wisdom Index



- Statements rated on a 1-5 scale (“strongly disagree” to “strongly agree”)
- Examples of items:
  - “I remain calm under pressure.”
  - “I tend to postpone making major decisions as long as I can.”
- Two versions: 28-item and 7-item
- Good to excellent psychometric properties

(Jeste DV, et al., J Psychiatric Research, 2020;  
Thomas ML, et al., Int’l Psychogeriatrics, 2021, in press)

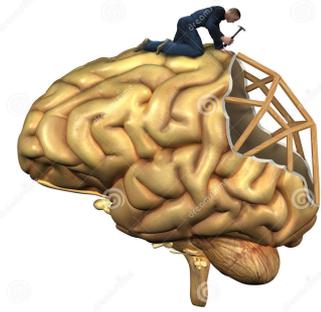
# Abilities that Tend to be Better in Older Adults than in Youth



- Emotional regulation
- Positivity: Favoring positive emotions & memory
- Empathy and Compassion
- Self-reflection
- Experience-based decision making

(Carstensen et al., 2004; Mather et al., 2004, Birditt et al., 2005, Kennedy et al., 2004, Brassens et al., 2012; Meeks & Jeste, 2009; Bangen, et al., 2013; Helmuth et al., 2003; Jeste et al., 2010; Grossman, et al., 2010; Worthy, et al., 2011)

# Neuroplasticity with **Active** Aging

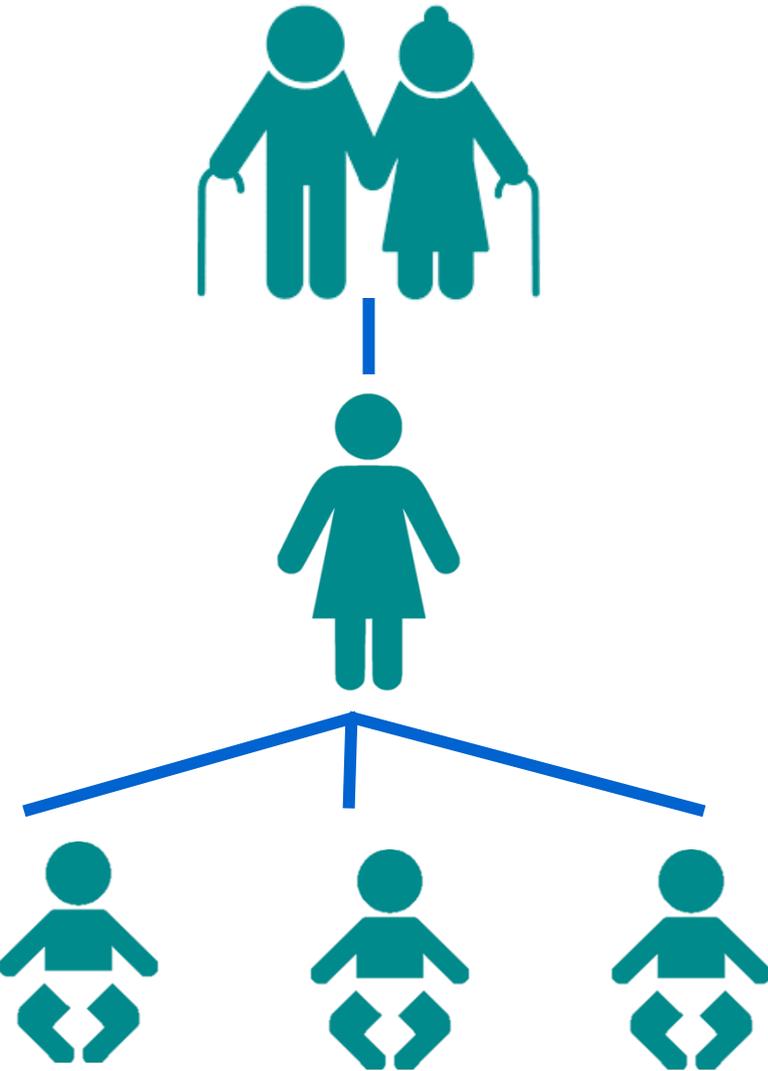


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- Greater recruitment & more efficient utilization of neuronal networks
- Synaptogenesis & neurogenesis in selected subcortical brain regions
- Diminished amygdala activation with negative emotional stimuli, regret, and fear → Positivity
- **Caveat:** Cognitive decline begins to overwhelm neuroplasticity in older old people

(Gage, et al., 2002; Mather, et al., 2004; Dennis & Cabeza, 2008; St Jacques, et al., 2009; Eyler, et al., 2011; Brassens, et al., 2012; Bangen, et al., 2012)

# Grandmother Hypothesis Of Wisdom



- **Grandmother involvement in raising grandchildren helps children's fertility (+ well-being & longevity)** (Lahdenpera, et al., Nature, 2004; Foster et al., Science, 2012; Hawkes & Coxworth, Evol Anthropol, 2013)
- **Grandparent genes? - Variants of CD33 and APO-E** (Schwarz, et al., PNAS, 2015)
- **Transmission of social cognition & cultural values like cooperation to grandchildren** (Gopnic, et al., and Hawkes, Philosoph. Trans. Royal Soc. B - Biol. Sci., 2020)

# Effects of Grandparenting on Behavior Problems in Grandchildren

(Attar-Schwartz, et al., J Family Psychology, 23:67-75, 2009)

- 1,515 secondary school students (age 11-16) in UK
- Greater grandparent involvement was associated with fewer emotional problems, more prosocial behavior, and reduced adjustment difficulties, especially among teenagers from lone-parent and step-parent families



# Inter-Generational Activities Benefit both Generations



- Experience Corps: Trained older adult volunteers served in public elementary schools
- Outcomes:
  - Improvement in children's grades & happiness
  - Enhancement of seniors' mental & physical health, biomarkers of stress & aging in blood & urine, and hippocampal volume on brain MRI

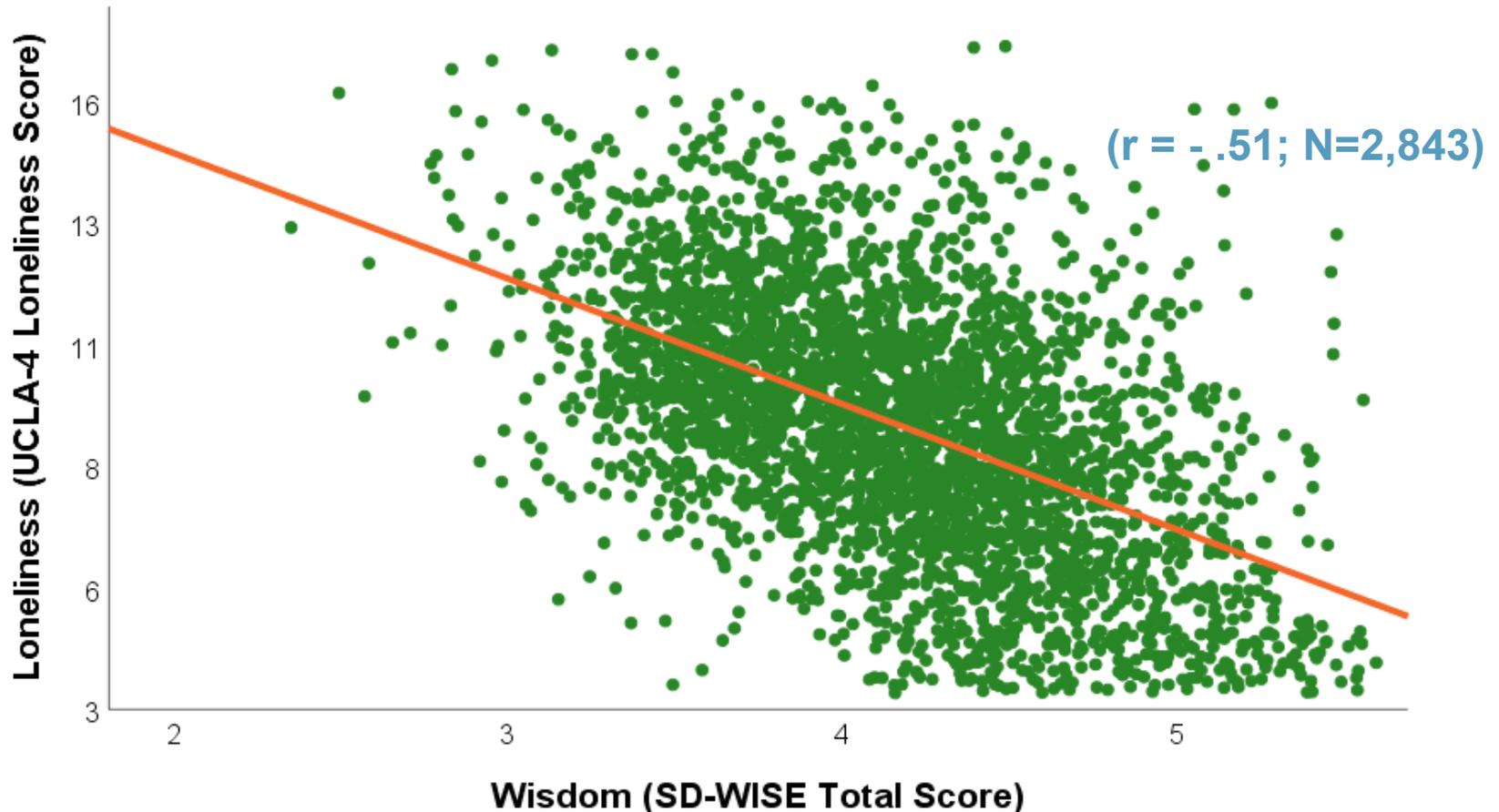
(Parisi, JM, et al., *Educational Gerontology*, 35, 867-879, 2009)

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# Loneliness vs. Wisdom: mTurk: Amazon-based Survey

(Nguyen, et al., J Clin Psychiatry, 2020)



# Loneliness vs. Wisdom: Clinical Studies



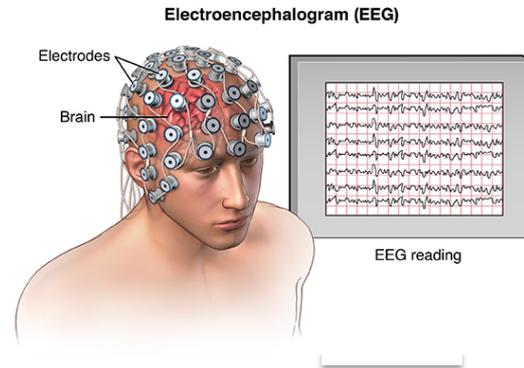
Loneliness is associated with worse physical & mental health, and wisdom/compassion with better physical & mental health (many studies)

Strong inverse correlation between loneliness and wisdom/compassion (Lee, et al., 2019; Nguyen, et al., 2020; Jeste, et al., 2020 a & b)

Longitudinal study (N=1,261): Baseline wisdom/compassion scores and increases in wisdom/compassion scores during follow-up predicted lower loneliness and better mental well-being scores 7 years later (Lee, et al., Transl. Psych., 2021, in press)

# Loneliness vs. Wisdom; EEG Study

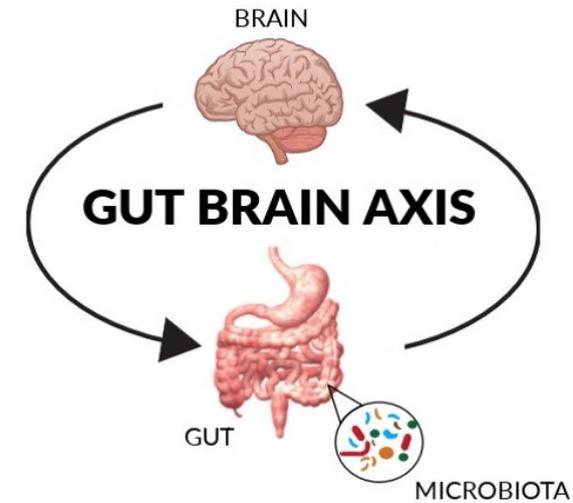
(Grannan G, et al., Cerebral Cortex, 2021)



- Neural Engineering & Translation Labs
- 147 adults, ages 18 to 85
- Temporo-Parietal Junction: Loneliness was associated with greater activity in the presence of angry emotions; Wisdom was associated with greater activity in the presence of happy emotions
- Differential involvement of ventral striatum in loneliness vs. insula in wisdom

# Loneliness vs. Wisdom: Gut Microbiome Study

(Nguyen TT, et al., Front. Psychiatry, 2021)



- Center for Microbiome Innovation – 16S rRNA
- 184 adults (age 28-97 years)
- Alpha and Beta diversity measures of phylogenetic richness were associated with higher levels of compassion, wisdom, and social engagement, and lower level of loneliness

# Prevalence of Psychopathology during Covid-19 Pandemic



Lower prevalence of psychopathology & higher resilience in older adults (Vahia, Jeste, Reynolds, JAMA, 2020)

Survey of 945 Americans ages 18-76 years: Aging was associated with higher frequency and intensity of positive emotions, and lower frequency and intensity of negative emotions (Carstensen, et al., Psych Sci, 2020)

Survey of 5,186 US adults: Prevalence of psychopathology was 15% in adults over age 65, and 75% in adults aged 18-24 years (Czeisler, et al., JAMA Network Open, 2021)

# OUTLINE

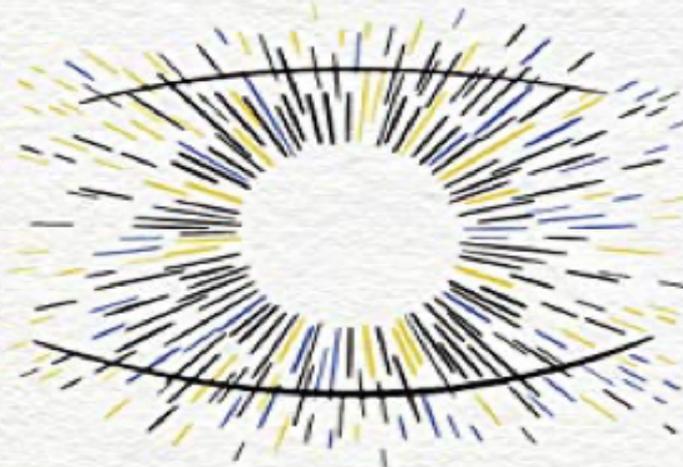
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...brilliant contribution to the emerging science of wisdom—how we define it and how we can intentionally cultivate it in ourselves and our society.”

Tara Brach, Ph.D., author of *Radical Compassion*

# wiser



**THE SCIENTIFIC ROOTS OF WISDOM,  
COMPASSION, AND WHAT MAKES US GOOD**

**DILIP JESTE, MD  
with SCOTT LAFEE**

# Can Wisdom be Enhanced?

- Most traits are only partly (35%-55%) inherited
- Wisdom may increase with aging, experience, and learning, but is reduced with specific brain trauma or disease – i.e., wisdom is modifiable
- Possible means of enhancing wisdom:
  - Psychosocial / Behavioral
  - Pharmacological / Biological
  - Technological

# Interventions to Enhance Wisdom Components

(Lee, et al., JAMA Psychiatry, 2020)

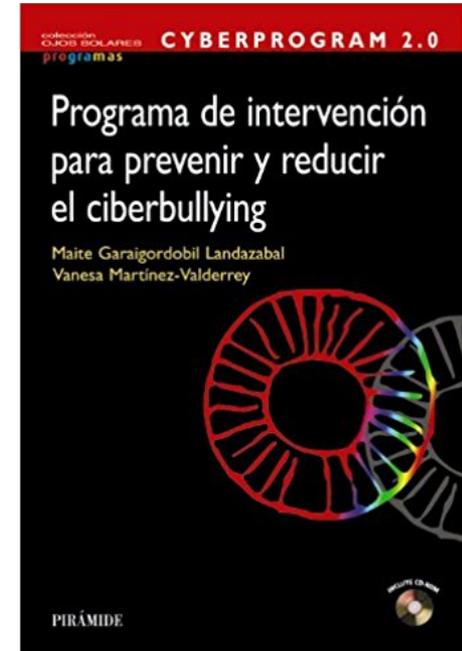


- **57 RCTs to enhance:**
  - Empathy/Compassion/Altruism, Emotional regulation, and Spirituality
- **Participants:** People with mental illnesses, people with physical illnesses, and those from general population
- **47% of studies reported significant enhancement of a wisdom component (moderate to large effect size)**

# Empathy Intervention

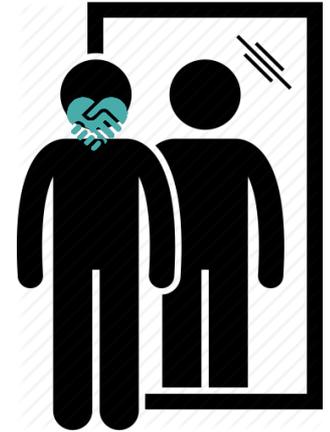
(Garaigordobil, et al., Psicothema, 2015)

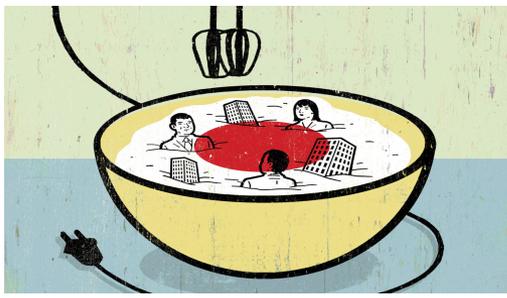
- Subjects: 176 adolescents in Spain
- Intervention: Cyberprogram 2.0 to prevent bullying and cyberbullying
  - Structured 19 one-hour group sessions: role-playing, brainstorming, case study, and guided discussions
- Results: Cyberprogram 2.0 increased empathy and reduced the amount of bullying and cyberbullying, compared to the control condition



# Strategies for Compassion Toward Others and Toward Self

- Gratitude journal
- Volunteering
- Sense of common humanity:  
“Everyone makes mistakes & faces major challenges”
- Self-kindness
- Mindfulness:  
“I have had similar stresses in the past and survived”





# Societal Wisdom?



- Today's highly stressed, polarized, angry, anxious, and depressed society
- Modern behavioral pandemic of loneliness, suicides & opioid-related “deaths of despair”
- Need for teaching “soft skills” of wisdom (compassion, self-reflection, acceptance of diverse perspectives) to students, businesses, and ..... politicians?

(Jeste, et al., JAMA Psych, 2020)

# International Community Campaigns



WHO Global Network  
for Age-friendly Cities  
and Communities

## Great Southern **Compassionate Communities**



# Transforming a Lonely, Distressed, and Polarized World into Happier, Healthier, and Wiser Society



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