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
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)
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
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)

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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**

Wisdom: A Multi-component Trait

(Bangen K, et al., Am J Geriat Psych, 2013; Jeste & Harris, JAMA, 2010)
Brain Regions Involved in Wisdom
(Meeks & Jeste, Arch Gen Psych 2009)

- Ant. Cingulate Cortex
- Ventro-medial Prefrontal Cortex
- Ventral Striatum
- Amygdala
- Insula
- Dorsolateral Prefrontal Cortex
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

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, Brassen 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

- 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; Brassen, et al., 2012; Bangen, et al., 2012)
Grandmother Hypothesis Of Wisdom


- 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

• 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., Educat’l Gerontol, 35, 867-879, 2009)
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Loneliness vs. Wisdom: mTurk: Amazon-based Survey
(Nguyen, et al., J Clin Psychiatry, 2020)

(r = - .51; N=2,843)
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

- 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)
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wiser

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

DILIP JESTE, MD
with SCOTT LAFEVE
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”
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

Stein Institute for Research on Aging
Center for Healthy Aging

UC San Diego School of Medicine
Transforming a Lonely, Distressed, and Polarized World into Happier, Healthier, and Wiser Society

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