



Social Connections: An Underappreciated determinant of Health

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Disclosures

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 - Coalition to End Social Isolation and Loneliness
 - Global Initiative on Loneliness & Connection
 - Nextdoor Neighborhood Vitality Board
 - US Aging
- Scientific Consulting
 - United Healthcare
 - Secure Senior Connections
 - Gramercy

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What brings happiness and joy?







- **Social Isolation:** Is objectively being alone, having few relationships, or infrequent social contact.
- **Loneliness:** Is subjectively feeling alone. The discrepancy between one's desired level of connection and one's actual level.
- **Social Connection:** An umbrella term that encompasses the structural, functional, and quality aspects of social relationships

IMPACTS OF SOCIAL ISOLATION AND LONELINESS

Health Outcomes

Substantial evidence shows strong association of social isolation and loneliness with greater incidence of major psychological, cognitive, and physical morbidities and lower perceived well-being or quality of life.

Mortality

Social isolation is associated with a significantly increased risk of premature mortality from all causes. There is some evidence that the magnitude of the effect on mortality risk may be comparable to or greater than other risk factors (e.g., smoking, obesity)

“Social Isolation is a major public health concern”
NASEM, 2020

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

CONSENSUS STUDY REPORT

Social Isolation and Loneliness in Older Adults

OPPORTUNITIES FOR THE
HEALTH CARE SYSTEM

HEALTH

Dec 10, 2018

The Loneliness Epidemic

Washington, DC

[Register](#)



**VIVEK MURPHY:
LONELINESS IS A
HEALTH CRISIS**



**LONELINESS
IN AMERICA**

46%

**SOMETIMES OR
ALWAYS FEEL ALONE**

- GEN Z (adults ages 18-22) is the loneliest generation

SOURCE: CIGNA

Did loneliness increase as a result of the pandemic?

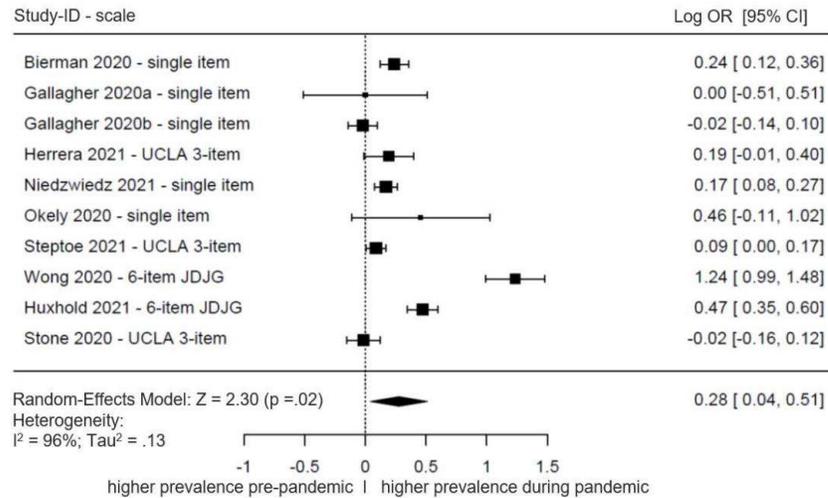
A systematic review with meta-analysis and -regression on changes in loneliness before and after the outbreak of the COVID-19 pandemic

Mareike Ernst, Antonia M. Werner, Daniel Niederer, Elmar Brähler, Manfred Beutel

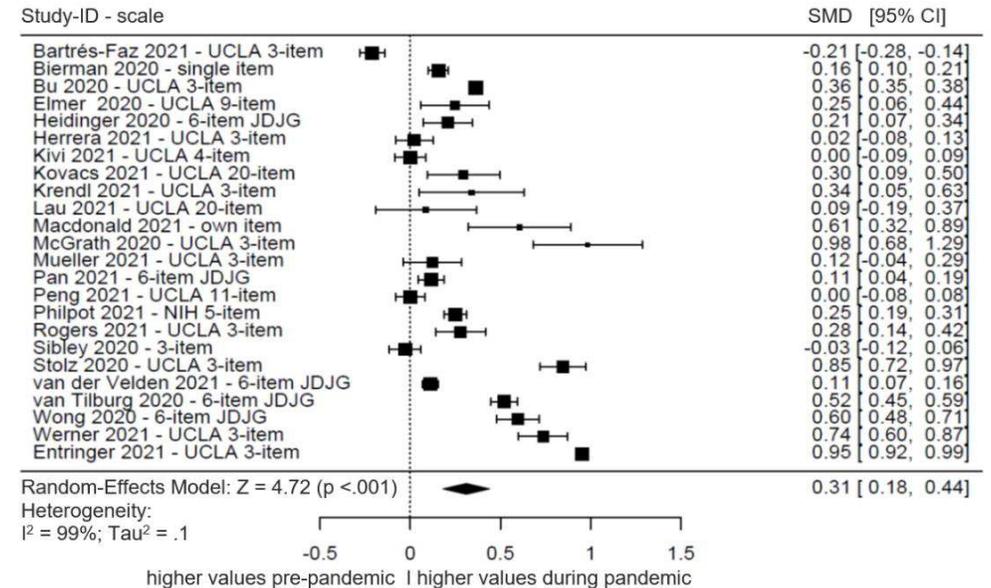
Citation

Mareike Ernst, Antonia M. Werner, Daniel Niederer, Elmar Brähler, Manfred Beutel. A systematic review with meta-analysis and -regression on changes in loneliness before and after the outbreak of the COVID-19 pandemic. PROSPERO 2021 CRD42021246771 Available from: https://www.crd.york.ac.uk/prospERO/display_record.php?ID=CRD42021246771

Loneliness was prevalent prior and has increased in prevalence and severity over the pandemic.



(10 studies, logOR = 0.28 [95% CI = 0.04-0.51], Z = 2.30, p = .02, I² = 96%)



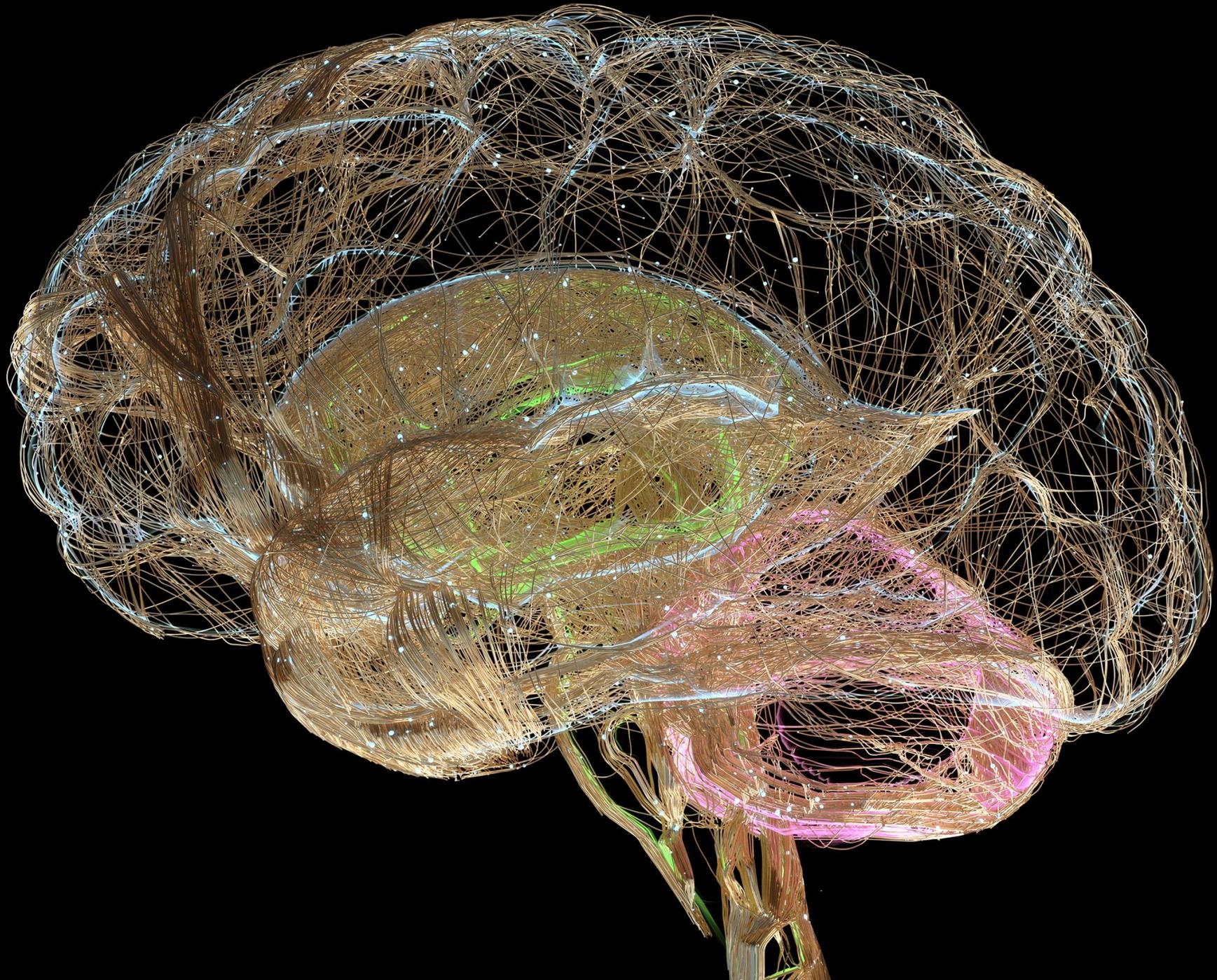
(24 studies, SMD = 0.31 [95% CI = 0.18-0.44], Z = 4.72, p < .001, I² = 99%)

Meta-analysis of 32 Longitudinal Studies. (Ernst et al, in press)



Humans are social beings...
We aren't meant to be alone

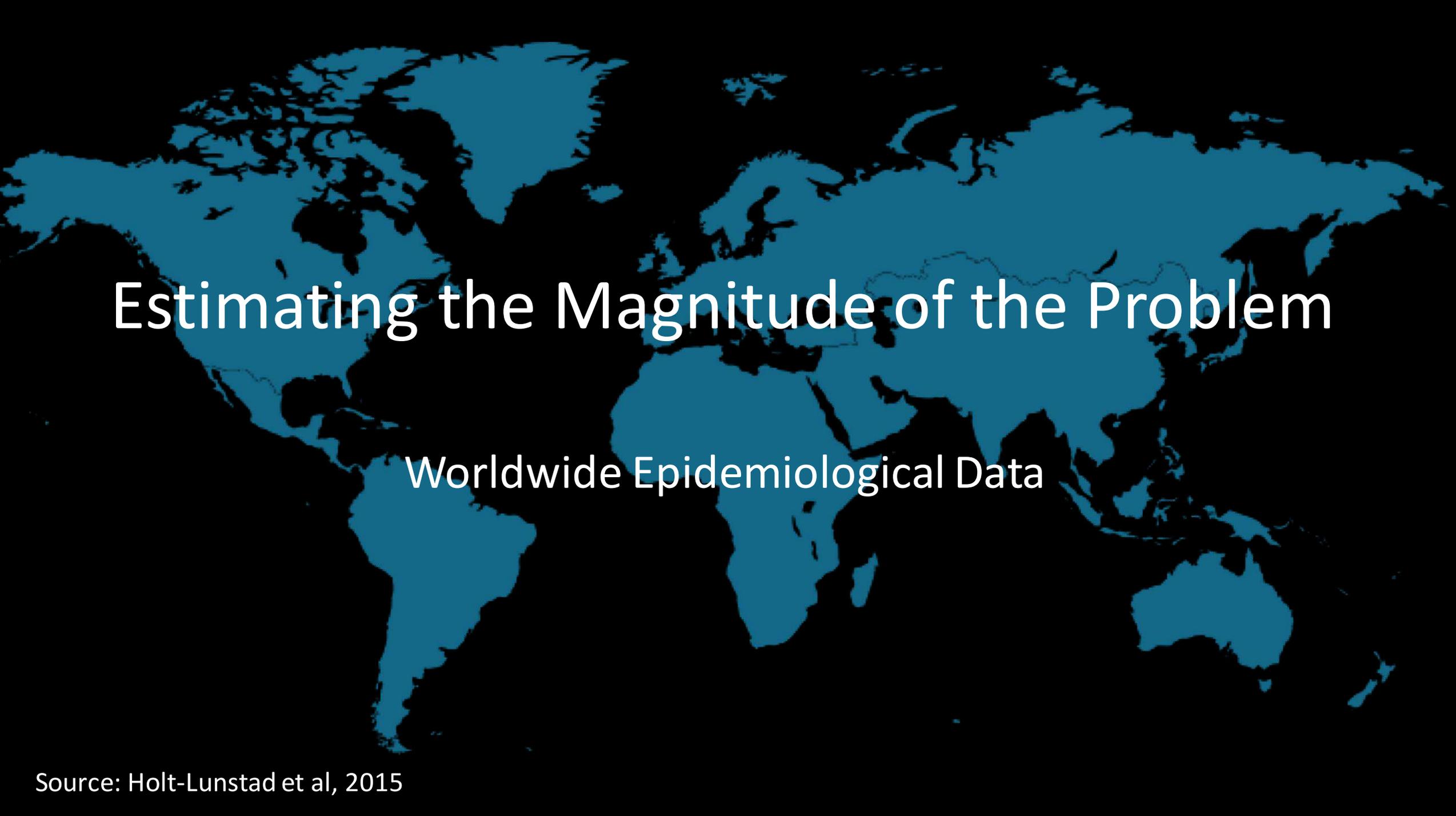
SOCIAL CONNECTION IS VITAL TO
HUMAN SURVIVAL



LONELINESS AS A BIOLOGICAL MOTIVE

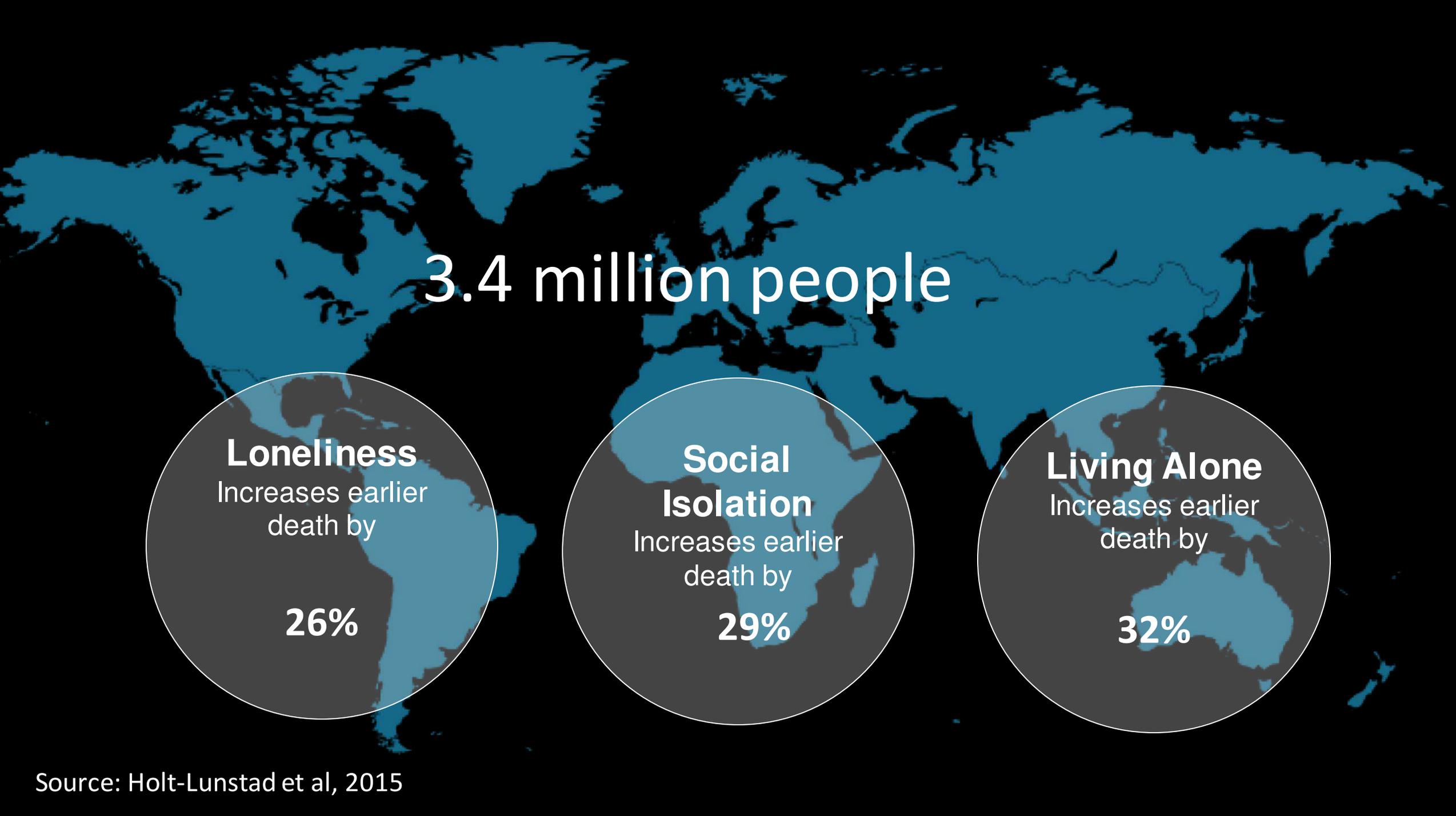


Social Isolation & Loneliness
are Deadly

A world map with a color gradient from light yellow to dark purple, serving as a background for the text.

Estimating the Magnitude of the Problem

Worldwide Epidemiological Data



3.4 million people

Loneliness
Increases earlier
death by

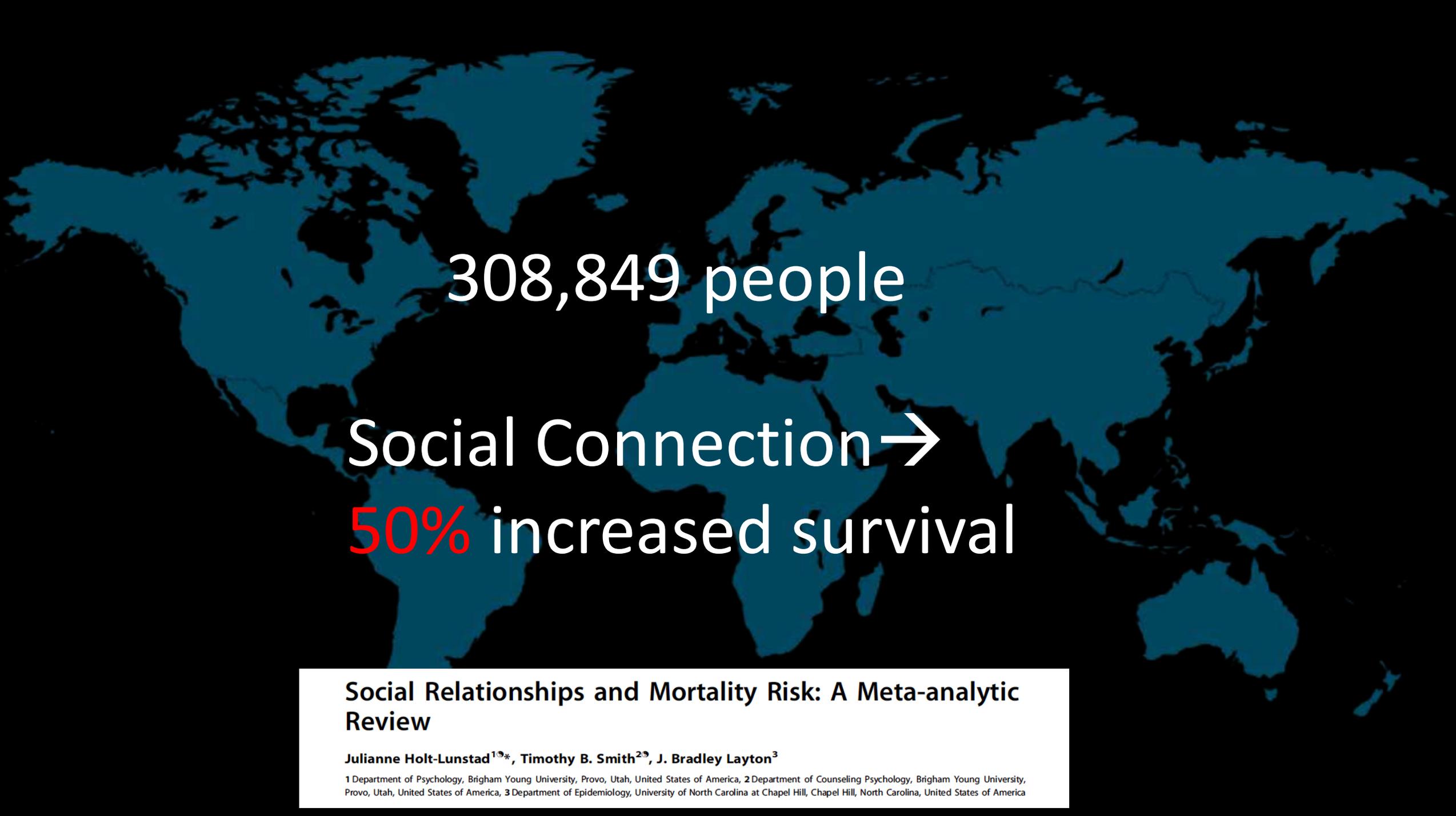
26%

**Social
Isolation**
Increases earlier
death by

29%

Living Alone
Increases earlier
death by

32%

A dark blue world map is centered in the background of the slide. The continents are outlined in a slightly lighter shade of blue, and the oceans are a darker blue. The map is centered on the Atlantic Ocean.

308,849 people

Social Connection →

50% increased survival

Social Relationships and Mortality Risk: A Meta-analytic Review

Julianne Holt-Lunstad¹*, Timothy B. Smith²*, J. Bradley Layton³

¹ Department of Psychology, Brigham Young University, Provo, Utah, United States of America, ² Department of Counseling Psychology, Brigham Young University, Provo, Utah, United States of America, ³ Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America

What does this mean?

Lifestyle and Environment is Important to our Health and Longevity



Smoking: 15 cigarettes daily [B]

Smoking Cessation: Cease vs. Continue smoking among patients with CHD [C]



Alcohol Consumption: Abstinence vs. Excessive drinking (> 6 drinks/day) [D]



Flu Vaccine: Pneumococcal vaccination in adults for pneumonia mortality [F]



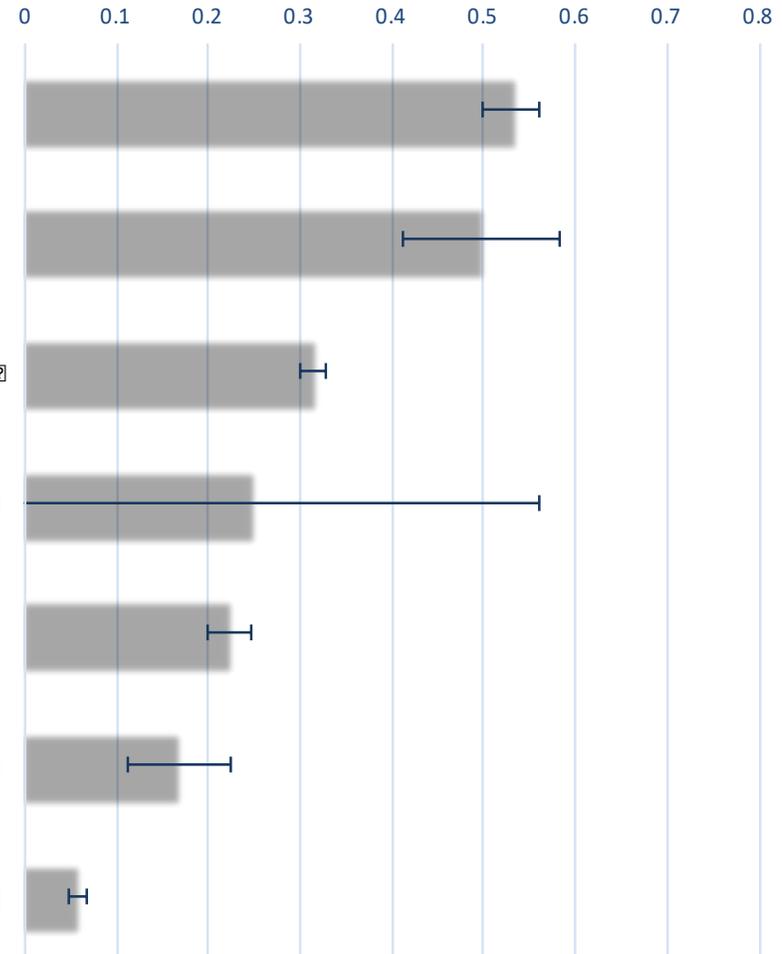
Physical Activity (controlling for adiposity) [H]



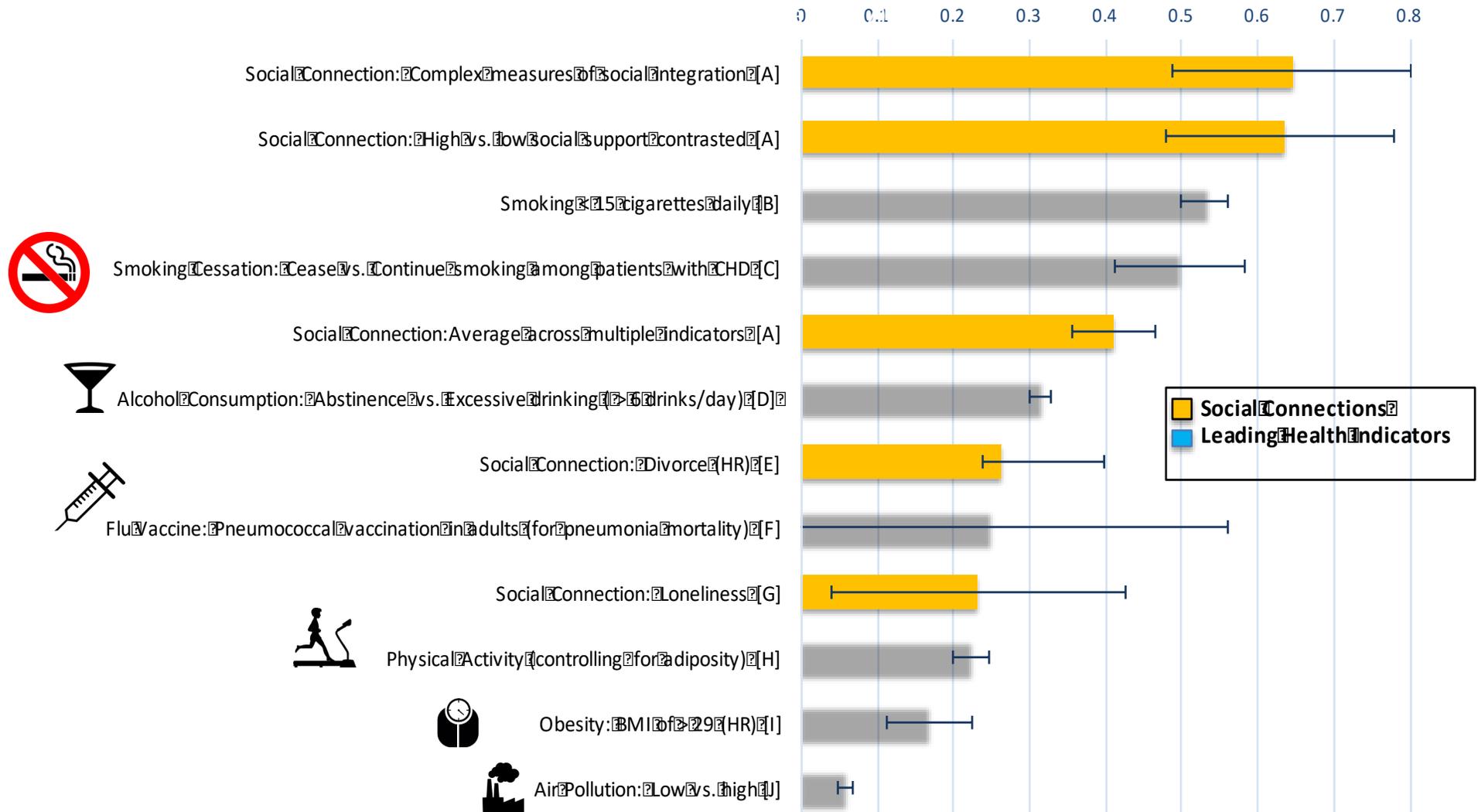
Obesity: BMI of > 29 (HR) [I]



Air Pollution: Low vs. High [J]



Social Connections have a Profound Effect on Risk for Mortality



What the Evidence tells us



Effect is robust relative to other risk factors



Consistent across cause of death



Objective and Subjective indicators predict risk



Independent Risk:

Controlled for several confounders



Dose Response

Physiological disruption across structural, functional, quality
Dose-Response Effect in early and late life (Yang et al, 2016)

What are the effects
beyond premature
mortality?

The influence of Social Isolation on Health and Economy



Physical Health

Cardiovascular Disease
Stroke
Type2 Diabetes



Mental & Behavioral Health

Depression & Anxiety
Suicidality
Addiction



Cognitive Health

Cognitive decline
Dementia
Alzheimer's Disease



Economic Health

\$6.7B in Medicare Spending
Lower productivity
More Absenteeism
Lower quality of work

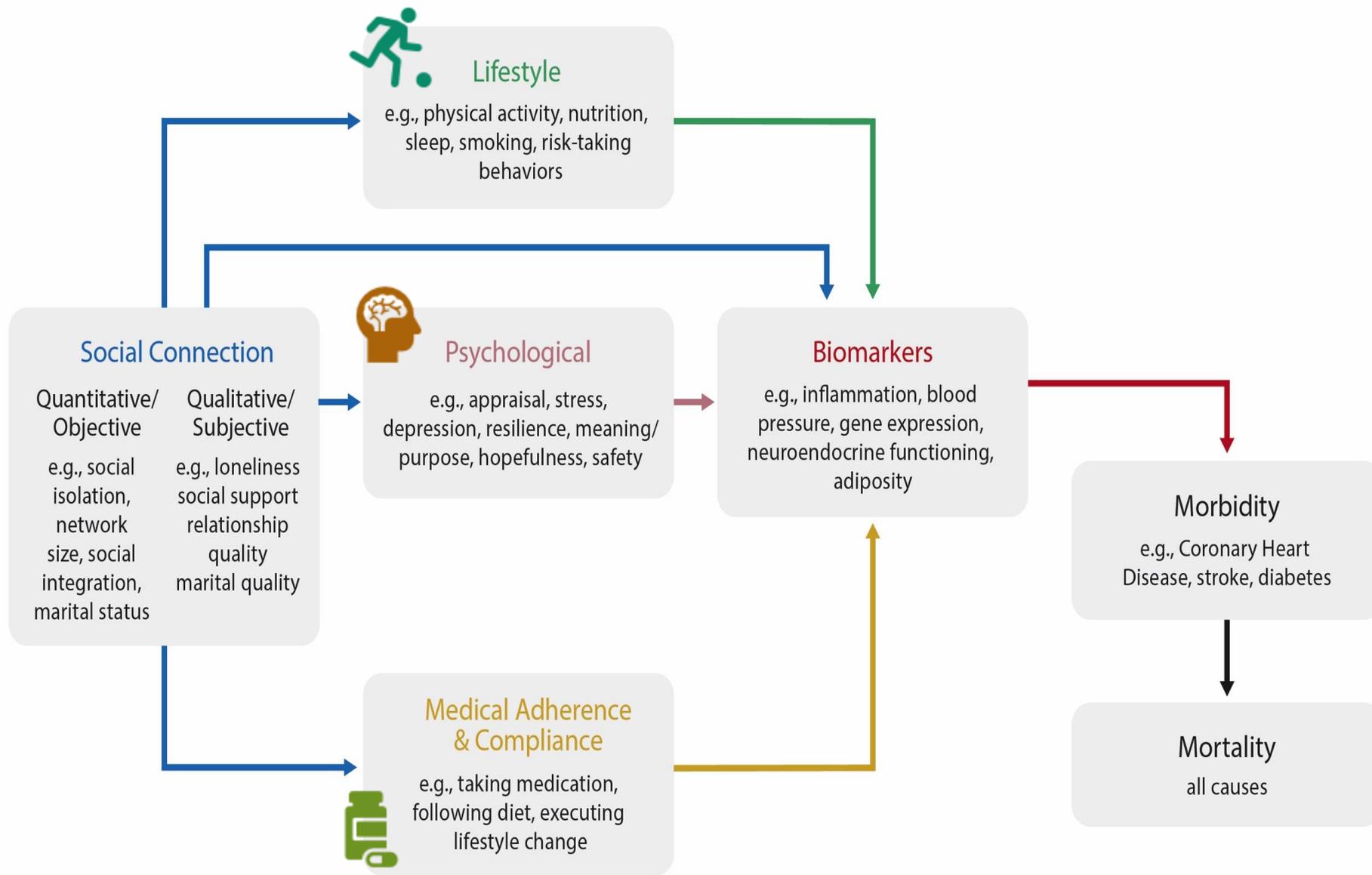
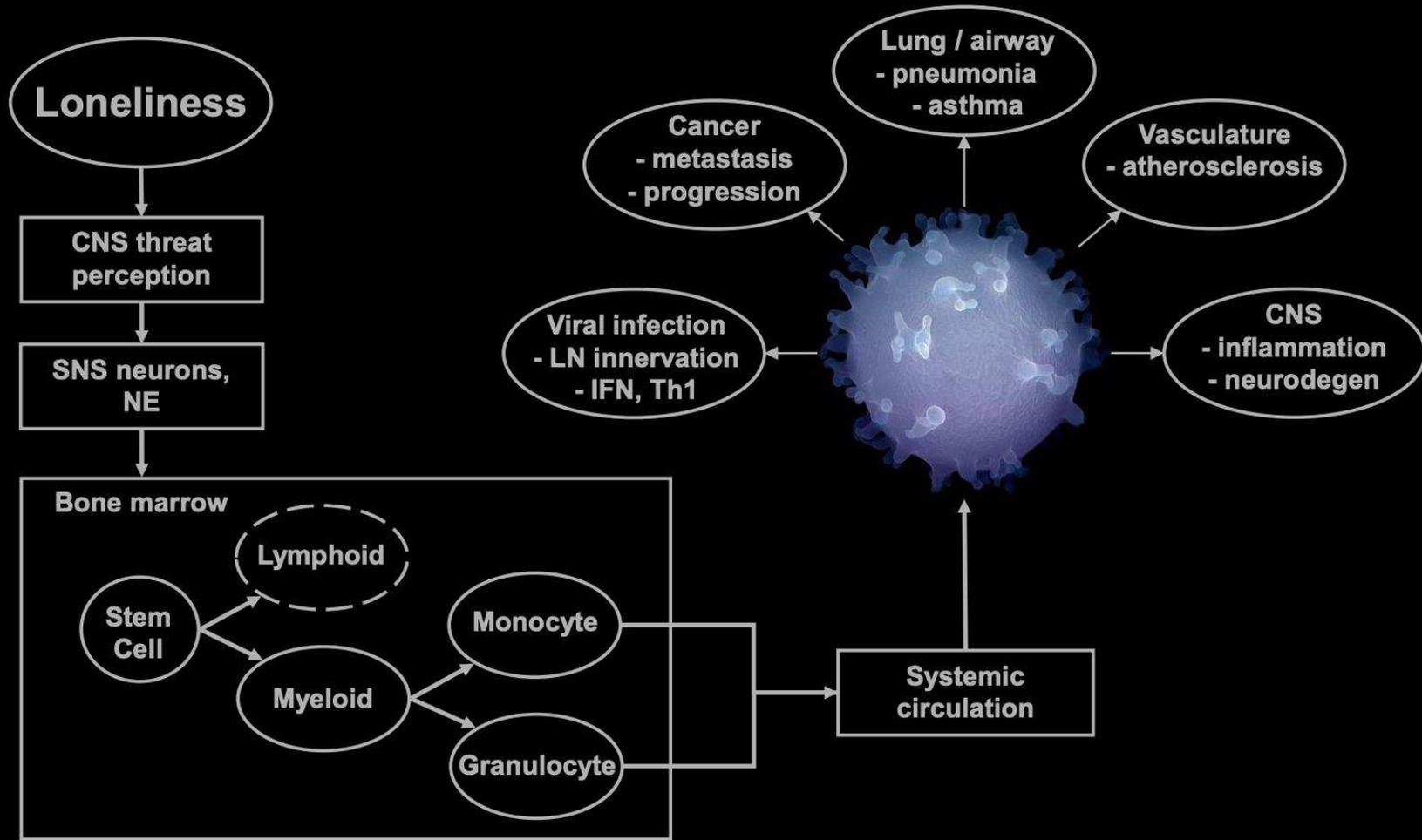


Figure 1. Simplified model of possible direct and indirect pathways by which social connections influence disease morbidity and mortality.



Chronic Inflammation

Social Factors

- Loneliness
- Social Connection

Physical Health Outcomes

- Cardiovascular, Cancer, Diabetes

Cognitive Health Outcomes

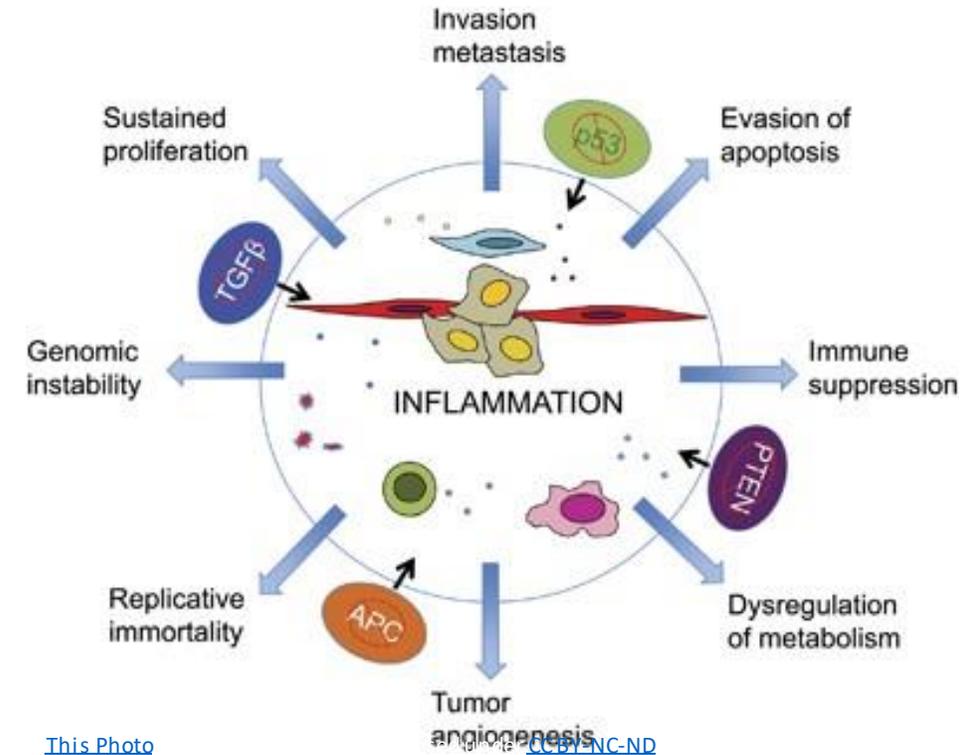
- Alzheimer's Disease

Oral Health

- Periodontal diseases

Mental Health Outcomes

- Depression



Problematic Behaviors



SUBSTANCE USE



POORER SLEEP



POORER EATING



What about Viruses?

Psychosocial Vulnerabilities to Upper Respiratory Infectious Illness: Implications for Susceptibility to Coronavirus Disease 2019 (COVID-19)

Sheldon Cohen 

First Published July 8, 2020 | Research Article |



<https://doi.org/10.1177/1745691620942516>

- Decreased risk included social integration and social support
- Increased risk associated with social isolation and loneliness
- Flu Vaccine Studies
 - greater social support more likely to mount an effective immune response.
- Covid-19 Vaccine
 - Lower social cohesion and loneliness led to poorer antibody response to vaccine (Gallager et al, 2022)



A pair of hands wearing blue nitrile gloves is shown holding a white silhouette of a family consisting of a man, a woman, and two children. The hands are positioned as if protecting or supporting the family. Surrounding the hands are several green, spiky virus particles, representing a public health crisis. The background is a soft, out-of-focus blue and white.

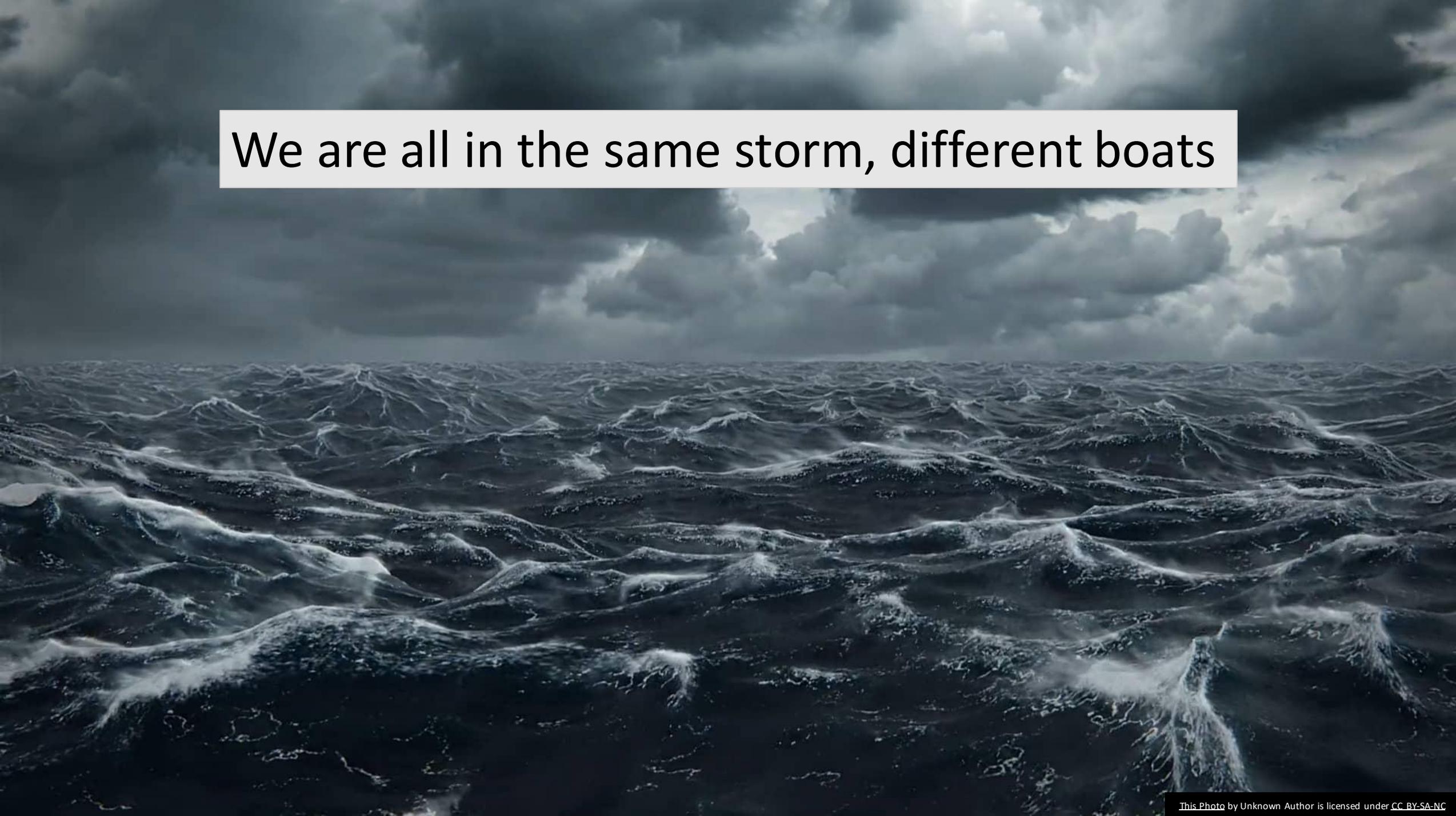
Evidence suggests that this public health crisis may be compounded.

Who is at greatest risk?

We're all in the same boat



We are all in the same storm, different boats

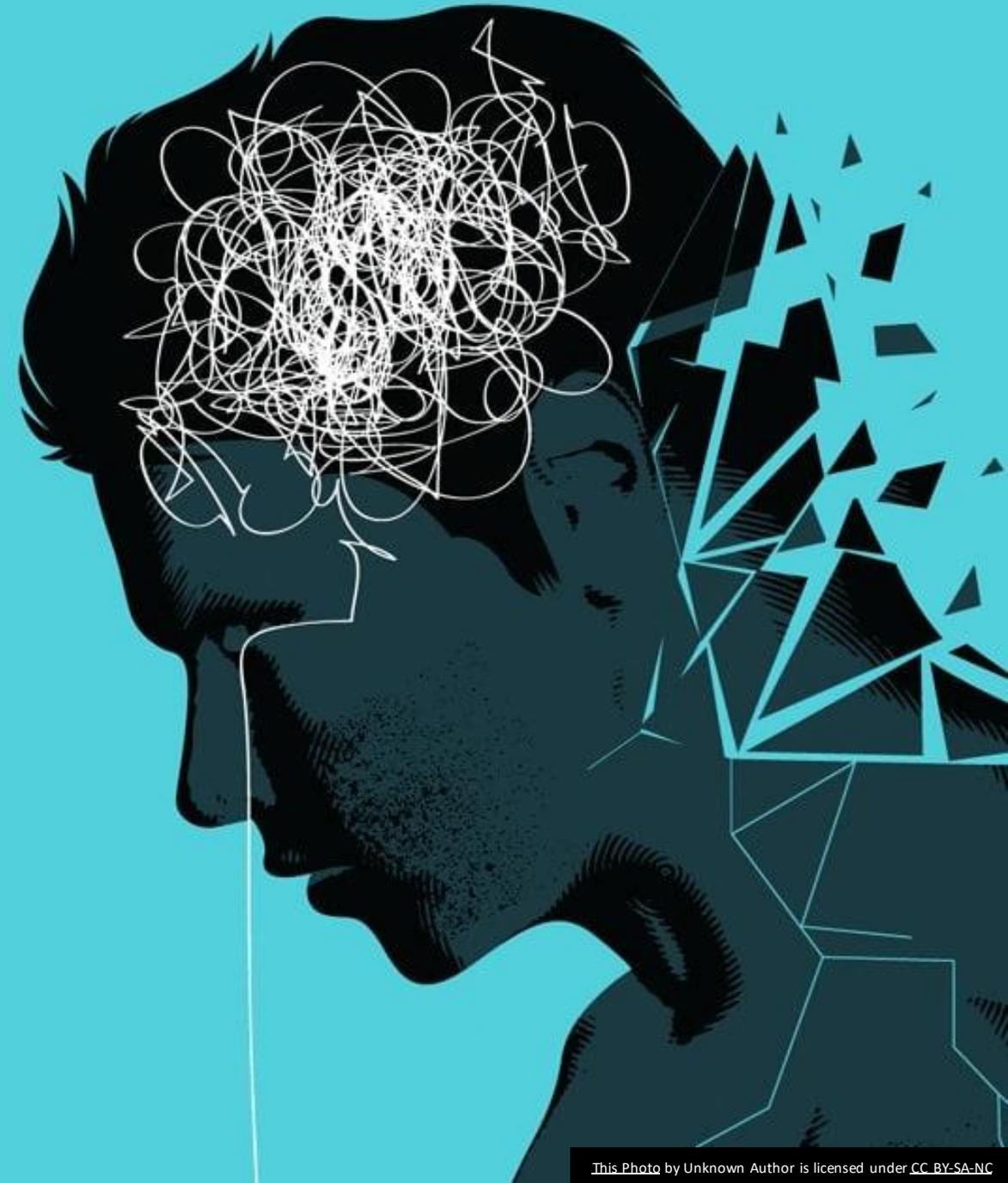


Who is most vulnerable?

Multi-National Study from 101 countries, 10 languages
(O'Sullivan et al., 2021)

- poorer mental health
- finance concerns
- living alone
- younger ages

consistently predicted greater severity
of loneliness and social isolation, both before and during
the pandemic



Marginalized and At-Risk Populations

- Older Adults
- Disability
- Minority Race/Ethnicity
- LGTBQA+

- Note:
 - Intersectionality of risk
 - Often under-represented in research
 - These are not homogenous groups --important heterogeneity in risk

A person is sitting on a wooden bench, viewed from behind, looking out over a large body of water. A large, leafless tree is on the right side of the frame, and its branches are visible in the upper left. The scene is dimly lit, suggesting dusk or dawn. The text "Getting back to normal is not enough" is overlaid in white, with "Continued prioritization needed" below it.

Getting back to normal is not enough

Continued prioritization needed

What can be done to mitigate risk?

How do we identify effective strategies?



Evidence-Based Strategies

What are the most effective Solutions?

An umbrella review of intervention studies

- 211 studies, seven meta-analyses for seven different types of interventions were evaluated
 - Interventions statistically significant for reducing loneliness
 - meditation/mindfulness,
 - social cognitive training
 - social support
 - Authors conclude:
 - low/very low certainty of the evidence, indicating the need for future large-scale RCTs
- Source: Veronese et al, 2020

Meta-analysis of Psychological Interventions for Loneliness

- 28 RCT studies ($N = 3039$)
- Most common intervention was Cognitive Behavioral Therapy (CBT)
- psychological interventions significantly reduced loneliness compared to control groups, yielding a small to medium effect size ($g = 0.43$)

• Source: Hicken et al, *Clinical Psychology Review*, 2021

Rapid Review of Interventions during the Pandemic

58 Studies of Social Isolation, Social Support, Loneliness Interventions feasible at a distance

Intervention types

- Psychological therapies (e.g., mindfulness)
- Educational lessons on friendship
- robotic pets
- social facilitation software

Mixed Findings:

- Few interventions improved social isolation.

Overall, 37 of 58 studies were of "Fair" quality

very few specifically target individuals of lower SES or ethnic minorities



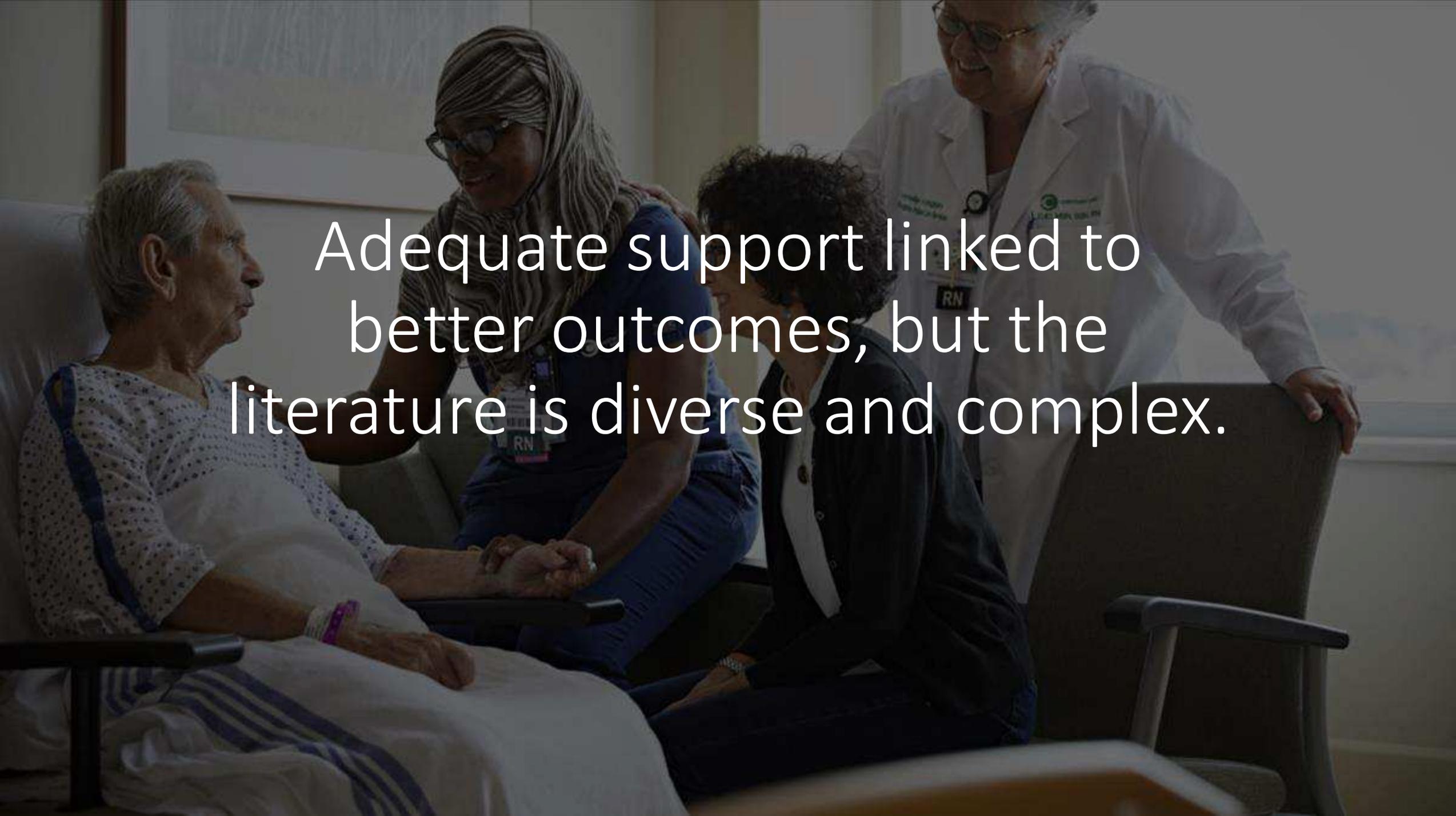
Tech-Based Solutions

- Evidence is primarily based on in-person contact
- Complex data
- Preliminary data suggest caution
- Barriers to reaching those most in need
- Evaluation of effectiveness



Conclusion

- Not all approaches are equally helpful
- There is no one-size-fits-all approach to addressing loneliness or social isolation
- Tailor interventions to suit the needs of individuals, specific groups or the degree of loneliness experienced.
- Future research should be aimed at determining what intervention works for whom, and in what context.
- Identify and overcome barriers

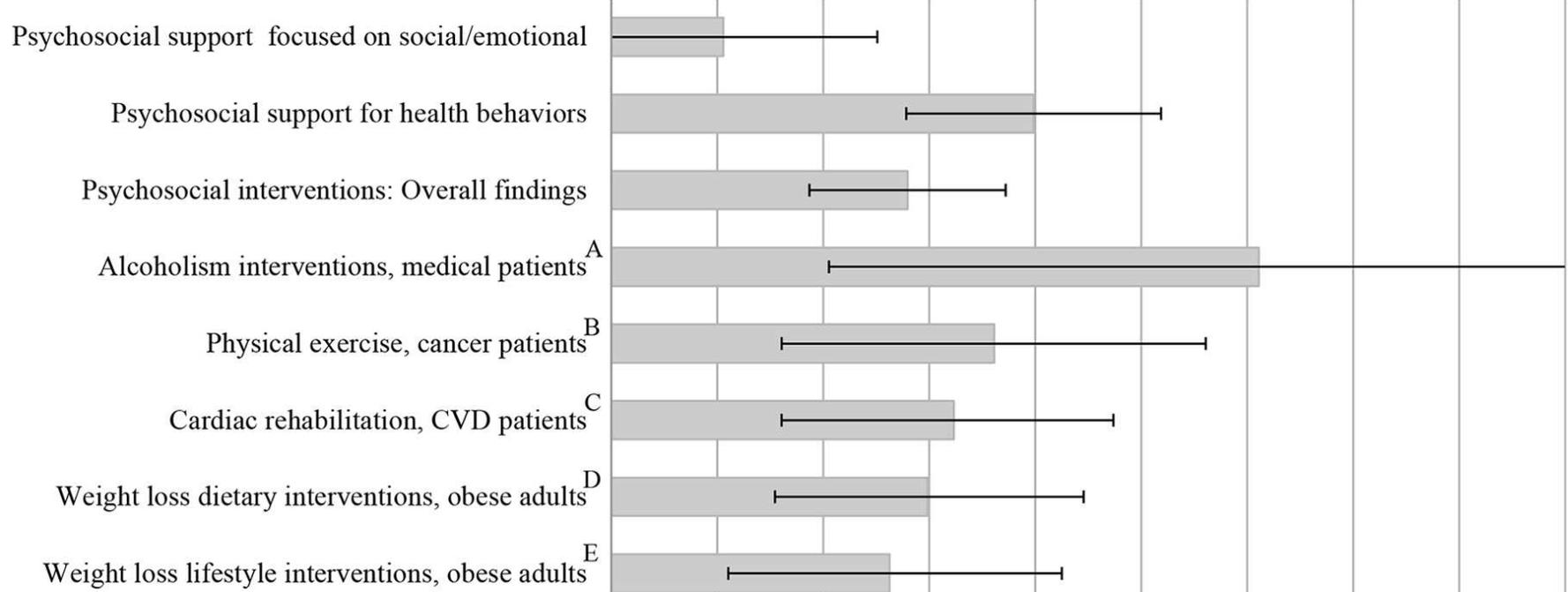
A photograph of a healthcare team providing support to an elderly patient in a hospital room. The patient is seated in a bed, wearing a white hospital gown. Three healthcare professionals are gathered around her: one woman in blue scrubs is seated and holding the patient's hand, another woman in a dark jacket is seated next to her, and a third woman in a white lab coat is standing and leaning over. The scene is dimly lit, with a window in the background. The text "Adequate support linked to better outcomes, but the literature is diverse and complex." is overlaid in white on the image.

Adequate support linked to better outcomes, but the literature is diverse and complex.

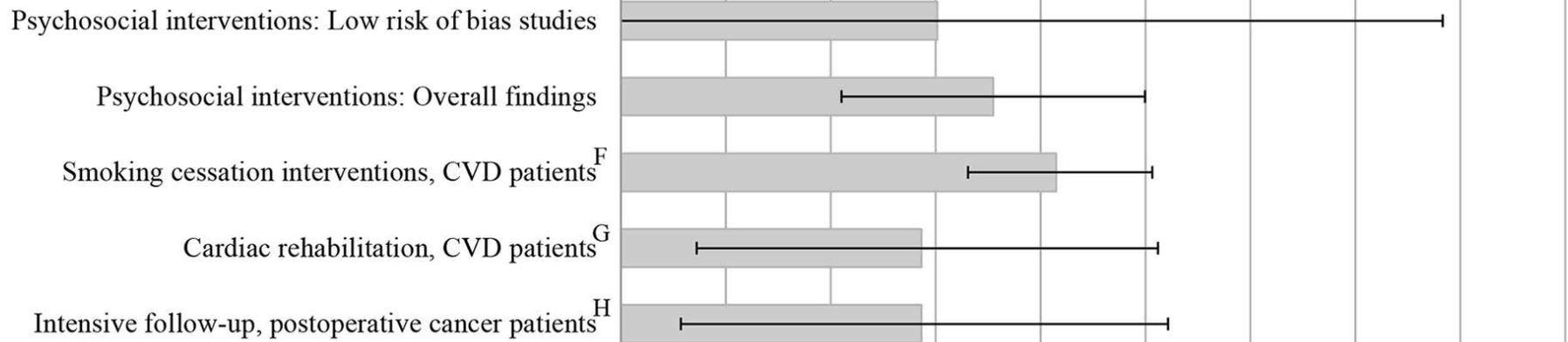
Psychosocial support
improves survival
among medical
patients

- 106 RCTs including 40,280 patients
 - 20% increased likelihood of survival among patients receiving psychosocial support compared to control groups receiving standard medical care
 - 29% increased probability of survival over time among intervention recipients compared to controls
- Source: Smith et al & Holt-Lunstad, *Plos Medicine*, 2021

InOR



InHR



Social Prescribing



Individual-level interventions typically only target those on the extreme low end

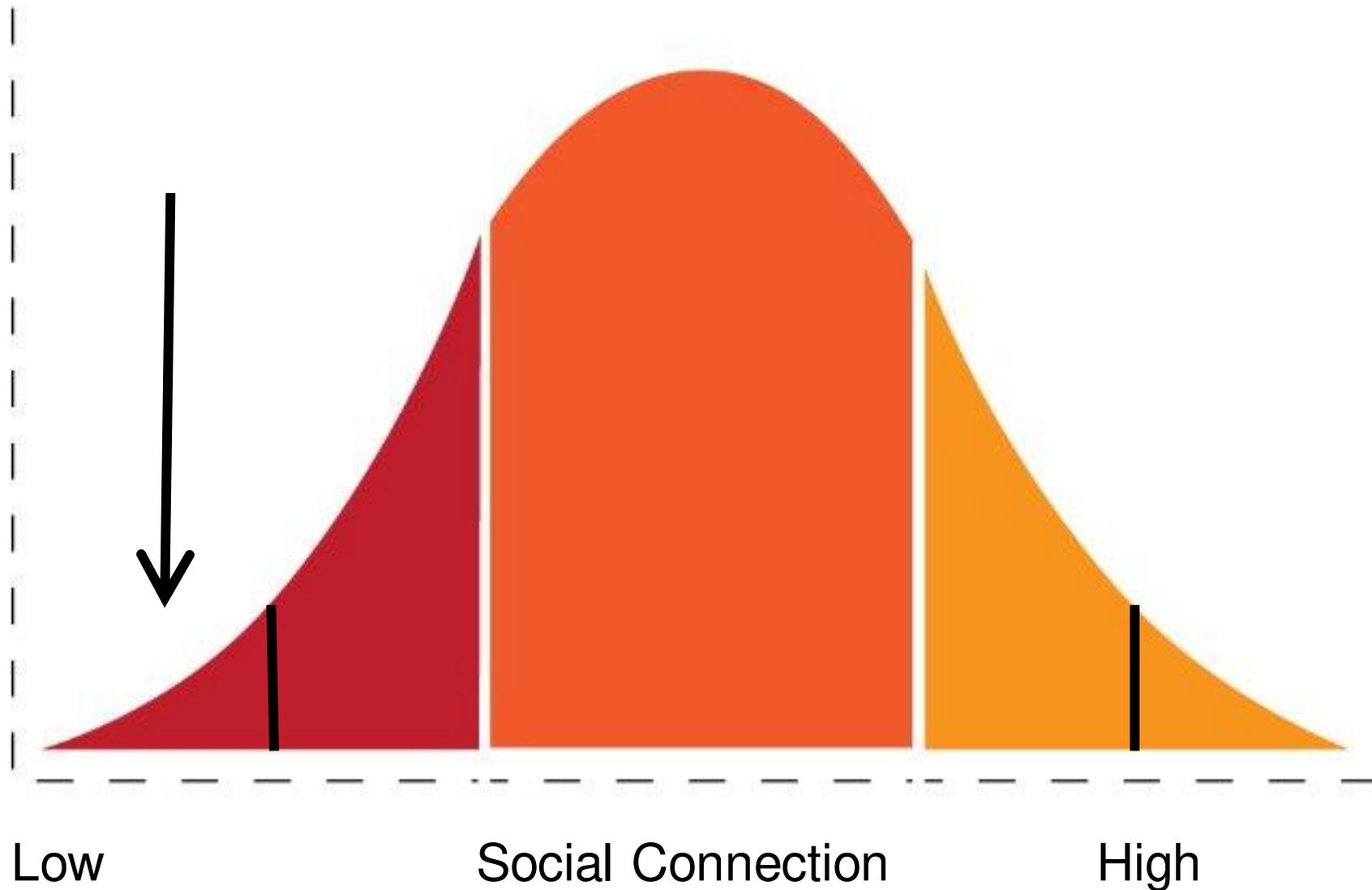
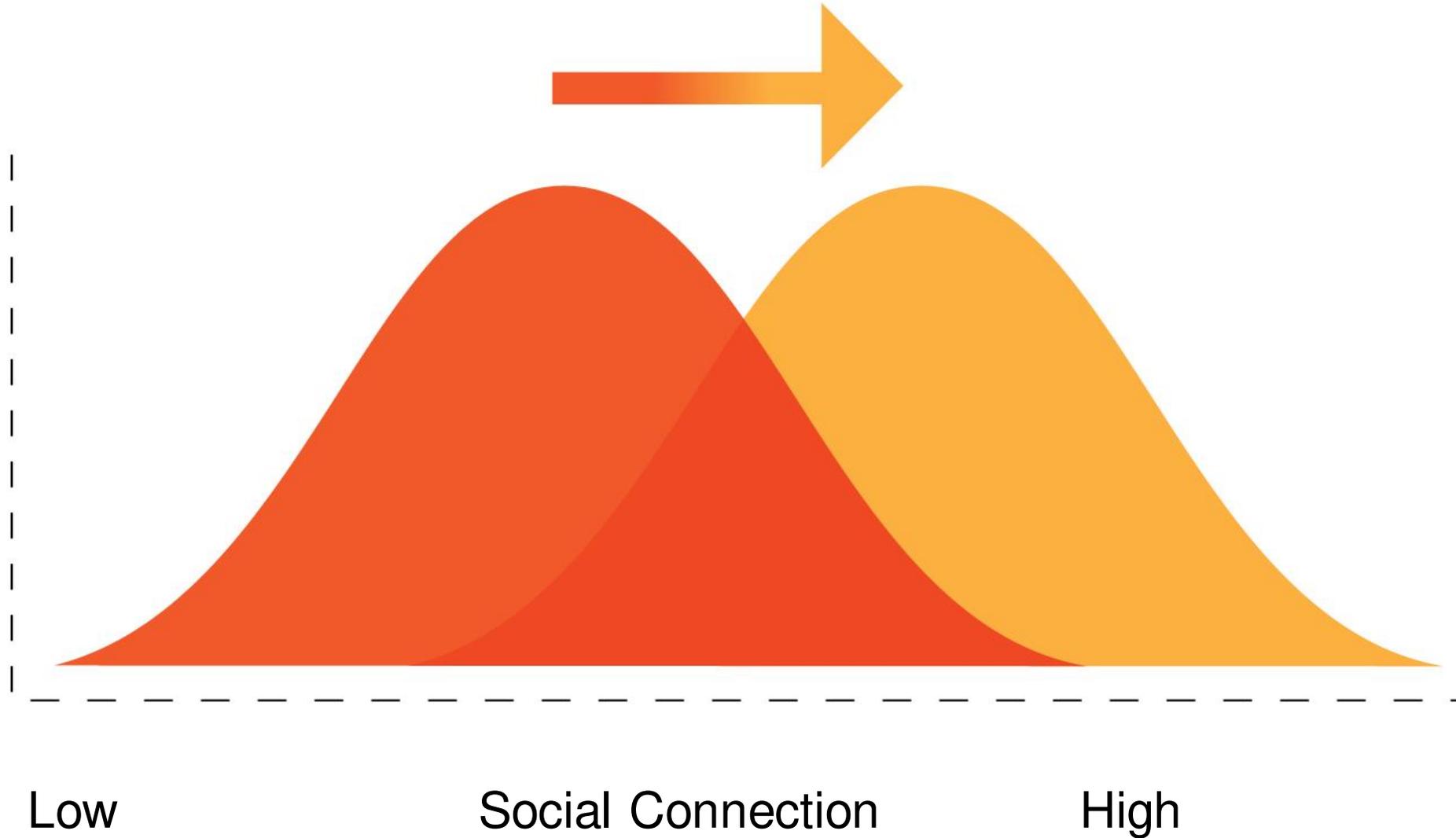


Figure: Holt-Lunstad *Annual Review of Psychology* 2018

Dose Response Effect: Yang *PNAS* 2016

SOCIETAL LEVEL



Population-based interventions may shift the distribution.

Daily dose of Vitamin S

Social Connection as part
of a healthy lifestyle



SOCIAL HEALTH

Adults who regularly engaged in healthy behaviors were less likely to experience loneliness

	Felt lack of companionship		Felt isolated from others		Frequency of social contact	
	Hardly ever	Some of the time/often	Hardly ever	Some of the time/often	Every day/several times a week	Once a week or less
Eat healthy						
Every day/several times a week	60%	40%	45%	55%	57%	43%
Once a week or less	53%	47%	42%	58%	44%	56%
Get exercise						
Every day/several times a week	63%	37%	46%	54%	59%	41%
Once a week or less	52%	48%	41%	59%	46%	54%
Get enough sleep						
Every day/several times a week	62%	38%	47%	53%	56%	44%
Once a week or less	45%	55%	35%	65%	45%	55%
Total	59%	41%	44%	56%	54%	46%

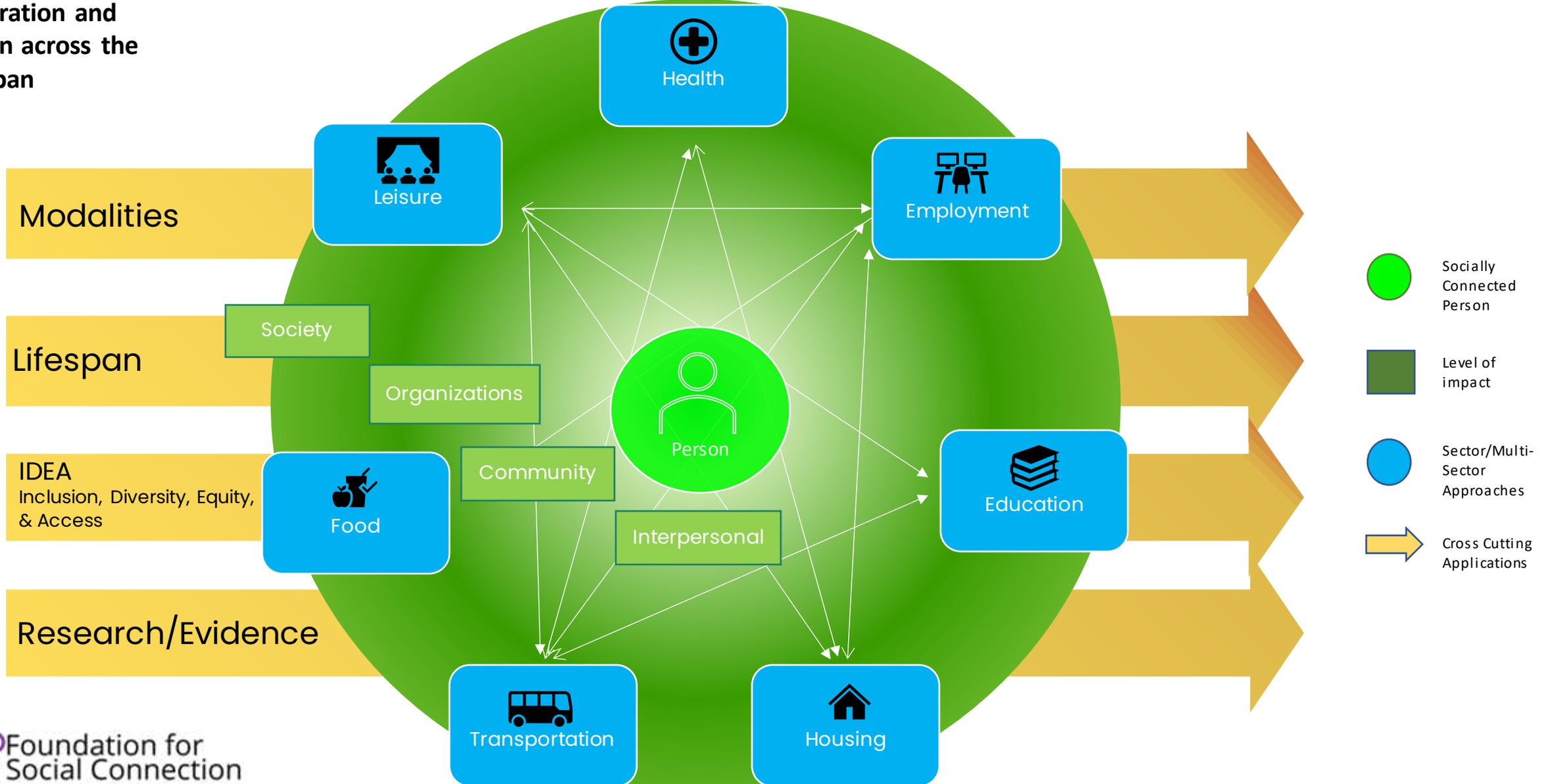
Social Contact is part of almost every aspect of life

Public Health Policy (Holt-Lunstad *Health Affairs*, 2020)



**Systemic Framework
Of
Cross-sector
Integration and
Action across the
Lifespan**

SOCIAL Connection Framework



Levels of influence across socio-ecological model

Sectors	1 Individual	2 Interpersonal	3 Institutional/ organizational	4 Community	5 Societal
1. Clinical and population health	1.1	1.2	1.3	1.4	1.5
2. Transport	2.1	2.2	2.3	2.4	2.5
3. Housing	3.1	3.2	3.3	3.4	3.5
4. Work	4.1	4.2	4.3	4.4	4.5
5. Nutrition	5.1	5.2	5.3	5.4	5.5
6. Environment: water and sanitation	6.1	6.2	6.3	6.4	6.5
7. Education	7.1	7.2	7.3	7.4	7.5
8. Leisure: arts and entertainment	8.1	8.2	8.3	8.4	8.5

Most solutions are focused on only one of these intersections.
95% is untapped opportunities to affect change



Potential Long-term Public Health Consequences (and Opportunities)



Thank you

Additional Resources

- NASEM 2020 report
 - <https://www.nap.edu/resource/25663/Social%20Isolation%20and%20Loneliness%20Report%20Highlights.pdf>
- Meta-Analyses of Mortality Risk
 - <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1000316>
 - <https://www.ncbi.nlm.nih.gov/pubmed/25910392>
- Social Connection as a Public Health Priority
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5598785/>

More about my work on Social Connection/Isolation:

- <http://julianneholtlunstad.byu.edu/>

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