

My shadow's the only one
that walks beside me:
**Loneliness and social
isolation in Older PLWH**

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What is loneliness

- ▶ Loneliness = the discrepancy between one's preferred and actual social relations
- ▶ Social isolation = a lack of contact between an individual and society

Loneliness and Isolation are common in the U.S.

- ▶ 46% feel alone or left out
- ▶ 25% do not feel there are people who really understand them
- ▶ 40% report their social relationships are not meaningful
- ▶ In 1985 10% reported they do not discuss important matters with anyone → in 2005, 25%

Concentrated and Unique experiences may contribute to loneliness in older PLWH

- ▶ Significant loss of peers & partners → rapid depletion of social networks + AIDS survivor syndrome
- ▶ Stigma associated with HIV and age → limit new interactions to grow and develop social networks
- ▶ Mental health → impairs social, cognitive function
- ▶ Medical co-morbidity → physical function impairment
- ▶ Socioeconomic factors → other basic needs sought out first

Loneliness and social isolation in older PLWH

- ▶ 39% older PLWH socially isolated 50% female
 - ▶ 54% older adults of color

- ▶ 58% older PLWH report loneliness 13% female
 - ▶ More likely to smoke, at-risk drinker and/or other substance use, low social support, have depressive symptoms and poor-fair quality of life
 - ▶ Loneliness associated with self-reported functional impairment and poor quality of life

The impact of Loneliness in older PLWH

28.9% female

0.8% MTF

0.3% FTM

- ▶ 39.1% of participants reported major depressive symptoms
 - ▶ Whites and latinos and younger age were more likely to exhibit depression
 - ▶ Poor cognitive function, pain and energy correlated with depression
- ▶ Every unit increase in the loneliness scale resulted in 6.4% increased odds of depressive symptoms
- ▶ Every unit increase in the stigma scale resulted in 1.3% increased odds of depressive symptoms

The impact of loneliness on health

- ▶ Increases odds of early death by 26-45%
- ▶ 29% increase in risk of heart disease, 32% increase in risk of stroke
- ▶ Associated with more rapid cognitive decline in later life
- ▶ Medi-care spends \$134/month on socially isolated persons = \$6.7 billion annually

Holt-Lundstad Perspectives on Psychological Science 2015

Holt-Lundstad Plos Medicine 2010

Wilson Arch Gen Psychiatry 2007

Valtorta Heart 2016

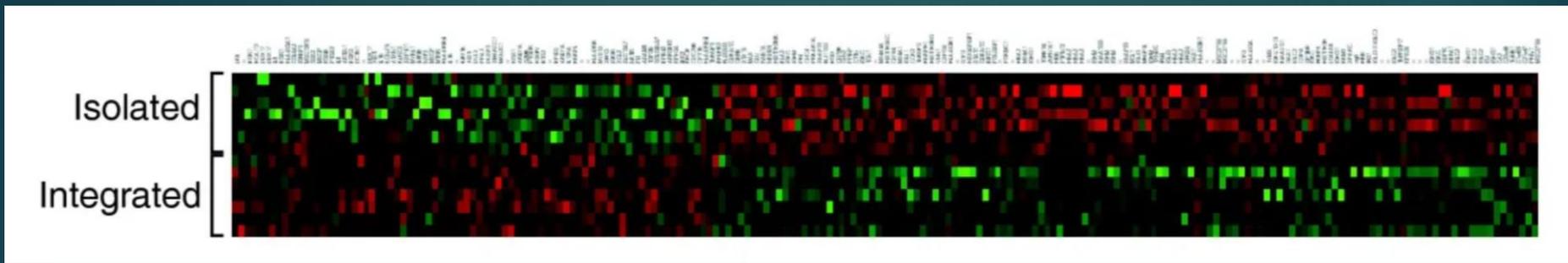
The pathogenesis of loneliness

- ▶ Medical Decision Making is impacted by presence of supportive friends and families
- ▶ Health Behaviors likely only account for a small portion
- ▶ Impact of stress:
 - ▶ 1) added-stress
 - ▶ 2) ~~differential exposure~~
 - ▶ 3) differential reactivity
 - ▶ 4) differential stress buffering

- ▶ Lonely persons have higher total peripheral resistance, lower cardiac contractility, heart rate and cardiac output
- ▶ Lonely persons had poorer sleep
- ▶ Loneliness may be linked to dysregulated immune function
 - ▶ higher levels of EBV and HHV6 titers
 - ▶ less NK cell activity
 - ▶ Poorer immune response to influenza vaccination
 - ▶ Increased circulating levels of cortisol

Explaining the paradox

- ▶ High cortisol levels desensitize the glucocorticoid receptor pathways that mediates transcriptional response to glucocorticoids
- ▶ In animal prolonged stress reduces cellular expression of NR3C1 gene resulting in increased cellular resistance to glucocorticoid inhibition of pro-inflammatory cytokine responses
 - ▶ Maybe these pro-inflammatory signaling persists in lonely persons

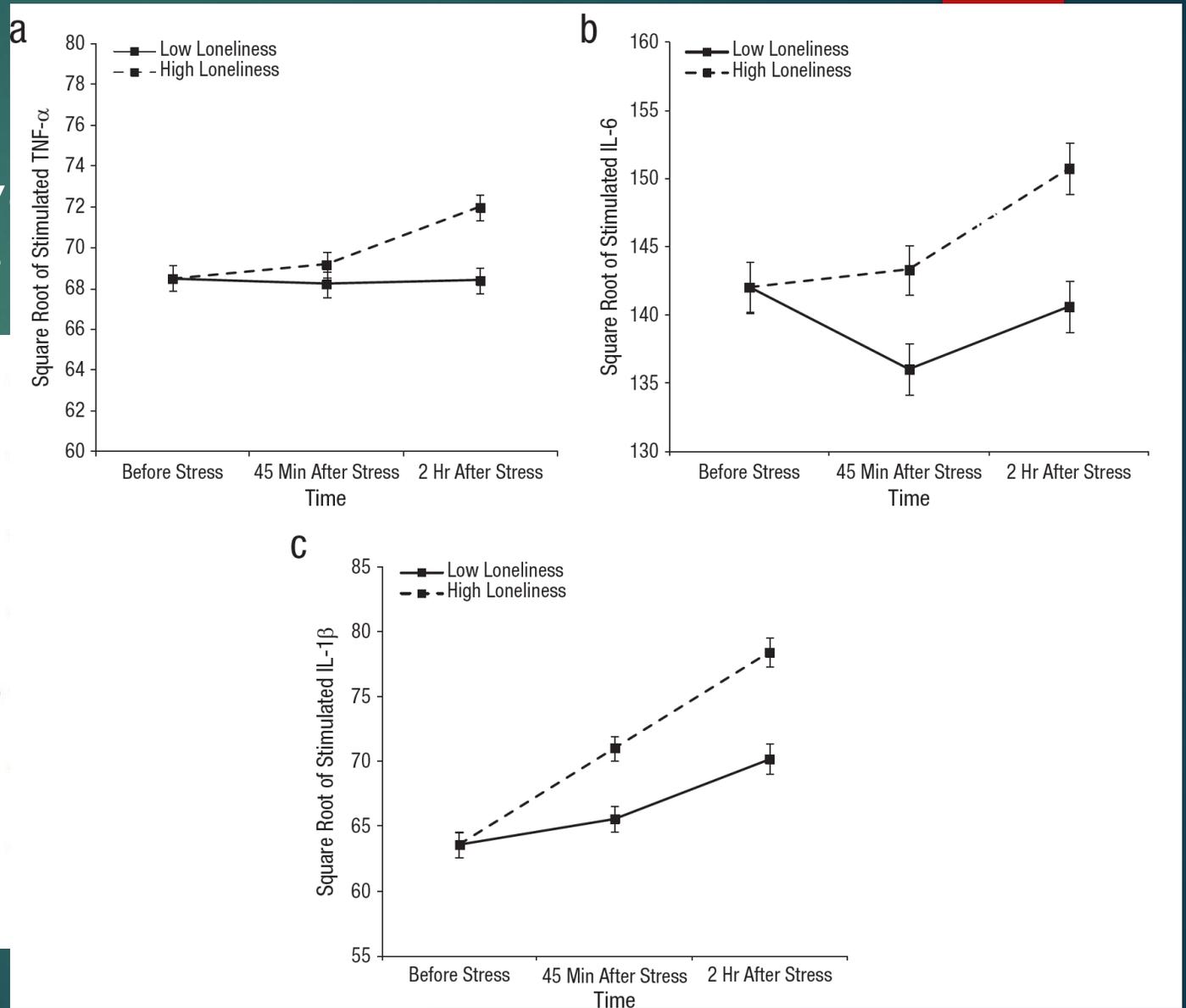
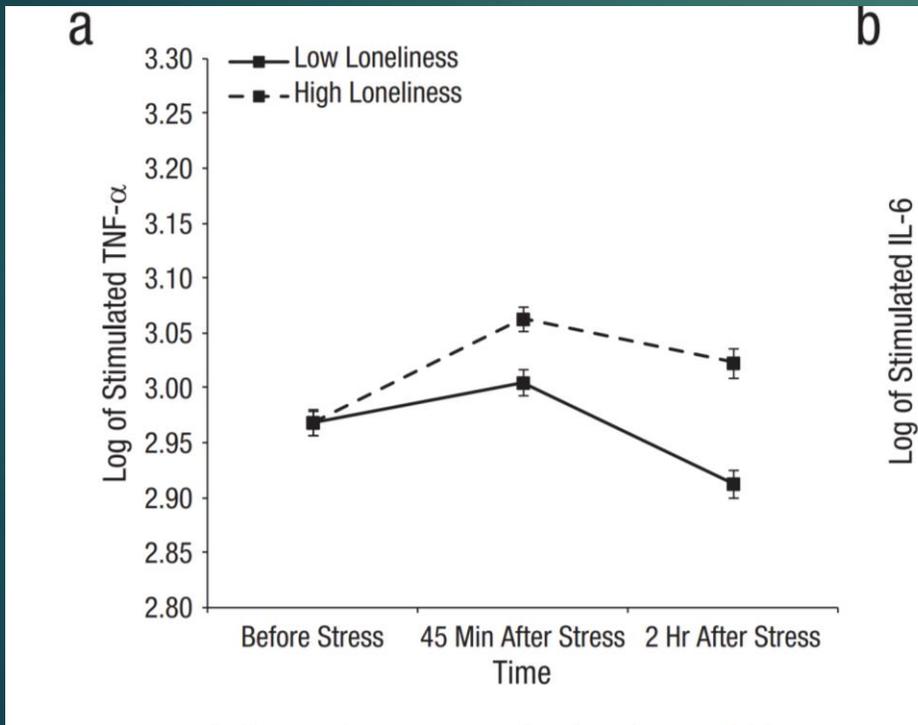


78%
female

- ▶ In 14 persons who were either higher lonely or low lonely (209 transcripts)
 - ▶ ↑ cell growth, differentiation, cell cycle progression ↓ cell cycle inhibitors, apoptosis related genes
 - ▶ ↑ proinflammatory genes (IL1B, IL8, IL10RA) and regulators of prostaglandin synthesis
 - ▶ ↓ genes involved in type 1 interferon response (STAT1), immunoglobulin regions, B cell maturation and differentiation
- ▶ Lonely persons demonstrate broad genomic immune activation with selective reductions in B cell dysfunction and antiviral responses
- ▶ Cells types that are most impacted are plasmacytoid dendritic cells and monocytes

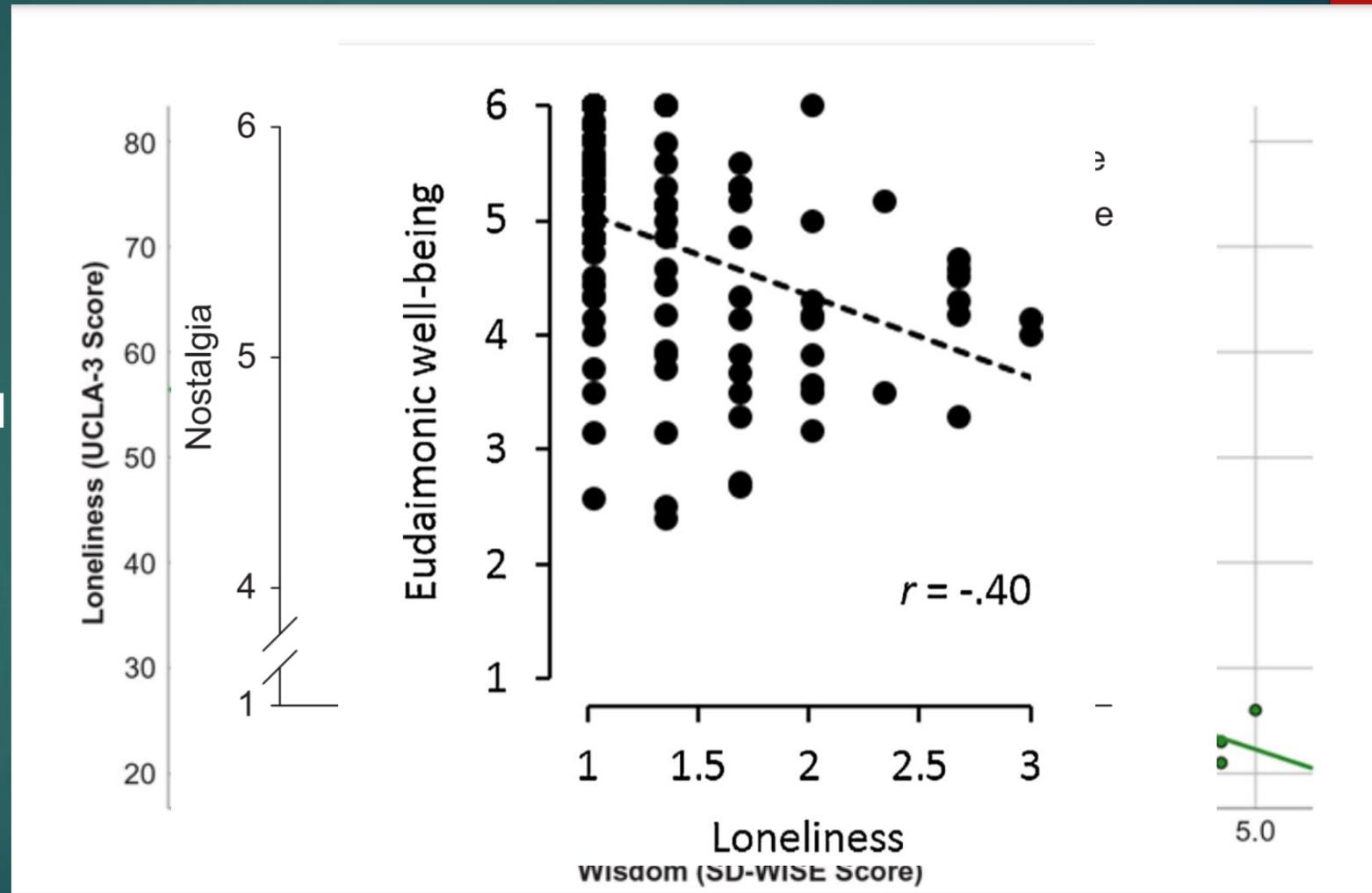
Loneliness promotes inflammation in acute stress

- ▶ 134 healthy sedentary ov comorbidities underwent



Can the impact of loneliness be modified?

- ▶ Wisdom
- ▶ Resilience
- ▶ Nostalgia
- ▶ Eudaimonia



What about HIV?

- ▶ 50.8% participants were lonely
 - ▶ Lower loneliness in persons aged 60 years or older compared to 50-59
 - ▶ Loneliness correlated with not being in a relationship, earning < \$50,000 annually, **having a four year college degree, poor HIV medication adherence**, living alone, screened positive for anxiety or depression, had six or more comorbidities, used tobacco, had lower quality of life and were not close to friends.

What can we do about this?

- ▶ Social facilitation
- ▶ Psychosocial therapy
- ▶ Animal rehabilitation
- ▶ Health and social care
- ▶ Befriending interventions
- ▶ Leisure skill development

Can we approach the problem of loneliness in comprehensive way?

What is the Village Model?

- Started by friends who lived in Beacon Hill who wanted to continue to live in their neighborhood, but recognized they would need some help
- Each member of the village pays an **annual fee** to support an **administrator** that members can contact to coordinate services and meet needs.
 - Helps members to age in place
 - Creates opportunities for individuals to use their talents to benefit the village
 - Promotes interactions and trust
- Currently > 200 Villages in the U.S. with many more in development

Do Villages work?

- 77% of members agreed they were more likely to stay in their own home as they aged
- However persons with “poor health” are less likely to be associated with a village
- Current villages lack significant socioeconomic diversity and are mostly white
- Questions exist about sustainability and dissemination of the model due to need for annual membership dues to facilitate operations
- Effective villages require leadership development and resource knowledge beyond that of the members

How do we overcome common barriers to implementation?

- To mitigate need for membership fees, leadership development, and resource knowledge ...
 - Anchor a Village to a funded, long standing, resource knowledgeable institution = San Diego LGBT Center
- To evaluate the effectiveness in a socioeconomically and ethnically diverse population ...
 - Engage older PLWH living in the region in San Diego with the highest density of PLWH
- To enhance the real-time responsiveness to needs...
 - Use of a hyperlocal social app to display and meet needs

Aims: 2nd AC+

- ▶ Aim 1: Perform needs assessments and describe social network characteristics of older PLWH and other persons living in the Central Region of San Diego
- ▶ Aim 2: Determine barriers and facilitators of using a hyperlocal social app to facilitate development of a village around older PLWH
- ▶ Aim 3: Assess the acceptability and feasibility of a hyperlocal social app to facilitate access to services, and examine its impact on social network characteristics over 12 months
- ▶ Primary outcomes: acceptability, feasibility
 - ▶ Social network characteristics
 - ▶ Psychosocial factors: Loneliness, Depression, Anxiety, Perceived stress, substance use, stigma
 - ▶ Clinical outcomes: change in adherence to HIV primary care plan, quality of life, self-reported function

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