Understanding and Addressing Loneliness

A Review of Loneliness, Causes, and Interventions Including Evidence-Based Strategies

Loneliness Definition and Prevalence

- Many researchers have attempted to define loneliness
  - Subjective feeling of social isolation, lack of companionship, or disconnection (UCLA Loneliness).
  - The discrepancy between a person's desired and actual social relationships (Russell, Peplau, & Cutrona, 1980). Dissatisfaction with social relationships (Newall at al 2019)
  - A biological… signal to change behavior… to avoid damage and promote the transmission of genes (Cacioppo et al., 2006).

- Chawla et al's 2021 systematic review and meta-analysis found:
  - Any **Loneliness: 28.5%, Moderate Loneliness: 25.9%**, Severe Loneliness: 7.9%
  - No significant increase in loneliness with older age (65–75 vs. 75+).
  - Women reported higher loneliness rates in most studies.

- Loneliness and social isolation are distinct but related concepts that should be studied together for better understanding and intervention development (Newall et al 2019).

Potential Causes & Symptoms

- Potential Causes
  - Aging and reduced social engagement (Coyle, C.E., et al., 2012) (Holt-Lunstad, 2020)
  - Lack of community resources (Lim, M.H., et al., 2023)(Horigian et al., 2020)
  - Health-related mobility issues (Boss et al.,2015) (Holt-Linstad et al., 2020)
  - Digital divide among seniors (Kemperman et al.,2019)
- Symptoms
  - Emotional distress, withdrawal, and sadness(Cacioppo et al.,2009) (Loades, M.E,. Et al., 2020)
  - Lack of numerous or meaningful social connections (Hawkley, L.C. et al., 2020)
  - Reports of feeling left out or isolated (Lim, M.H., et al., 2020)

Anxiety, Depression, and Cognitive Function

- **Loneliness is associated with increased depressive symptoms, perceived stress, and anxiety.** Individuals experiencing loneliness often exhibit withdrawal behaviors and heightened emotional distress (Cacioppo & Hawkley 2009).
- People with depression and/or anxiety experience higher levels of social isolation and loneliness and score lower on cognitive function tests compared to those without (Evans et al 2019).
- Overall, quality of life diminishes with age. This effect is independent of sociodemographic characteristics (i.e., sex and years of education) and emotional status. **Depression has the highest relative importance, followed by anxiety, on quality of life**. Lower education, higher levels of depression, and anxiety are significantly associated with worse future quality of life (Riberiro et al.,2020).

Household Composition and Loneliness/Social Isolation

- Shimada et al., 2014 found that **31.0% of elderly living alone experienced social isolation compared to 24.1% for those living with family.**
  - Risk Factors: Poor mental health and lack of social support from non-cohabiting individuals for both groups. For those living with family low intellectual activity (e.g., not reading or engaging with information) and poor health practices (e.g., diet, exercise, sleep) were additional risk factors.
  - Interventions should address mental health, social support, and engagement, even for those not living alone. Promote mental wellness, friendship networks, intellectual stimulation, and healthy lifestyles to reduce isolation.
- Chan et al.,2020 found that **low social support (emotional, instrumental, informational) was associated with living alone, lower education, higher depression, and less physical activity** but was not associated with reduced frequency of social activity overall. Low social activity was associated with less education, lower income, being male, and living alone.:
  - Interventions for older adults living alone should include support within the home (e.g., companionship, household help, emotional support).
  - Screening indicators: Education, income, depression, physical activity, and living status.
- Kim et al.,2014 finds that **living with a partner/spouse provided the greatest protection against loneliness, compared to living along or living with others**.
  - Social support and larger social network size reduced loneliness. Internalized stigma increased loneliness.
  - Interventions should enhance social support quality, network size, and reduce internalized stigma.

Loneliness, Living Alone, and All-Cause Mortality: The Role of Emotional and Social Loneliness in the Elderly During 19 Years of Follow-Up (O'suilleabhain et al.,2019)

- Emotional loneliness (not social loneliness) was significantly associated with increased mortality among those living alone. Each 1 SD increase in emotional loneliness = 18.6% higher mortality risk.
- No significant effect of loneliness (emotional or social) among those not living alone.
- Functional status moderated the effect: The more physically independent a person was, the stronger the impact of emotional loneliness on mortality.
- Implications:
  - Emotional loneliness—feelings of abandonment or lack of close connection—is the "toxic" component of loneliness.
  - Living alone + emotional loneliness is a high-risk combination.
  - Intervention strategies should distinguish between emotional and social loneliness.
  - Functional ability may intensify emotional effects; thus, both psychosocial and physical health should be addressed.

Measuring Loneliness

- **UCLA Loneliness Scale**: 20-item survey, measures subjective feelings of loneliness, social isolation, and sense of belonging.(Lee et al.,2019)
  - **Australian Loneliness Index**: A comprehensive index developed in Australia that measures personal, social, and community-level factors contributing to loneliness. Used for policy research and social well-being assessments.
  - **European Social Survey Loneliness Scale**: A scale used in European research that assesses loneliness across different cultural and socioeconomic groups, particularly in relation to mental health and public policies
- **De Jong Gierveld Loneliness Scale**: Distinguishes between emotional loneliness (lack of intimate relationships) and social loneliness (lack of broader social networks). (Giraldo-Rodrigues et al.,2023)
- **NYU Loneliness Scale**: A loneliness assessment tool developed specifically for older adults, evaluating loneliness's impact on physical and mental health, cognitive decline, and social engagement. (Qi et al.,2023)
- **Lubben Social Network Scale**: Measures social isolation by evaluating the size, closeness, and frequency of contact within social networks, particularly among older adults. (Lubben et al.,2006)
- **Social and Emotional Loneliness Scale**: Assesses social loneliness, family loneliness, and romantic loneliness. (DiTommaso et al.,1993)

Ageism and Loneliness

- Ageism significantly shapes perceptions among younger individuals regarding older adults, often casting a negative light on them and obscuring the struggles that older populations face, such as loneliness. This societal phenomenon encompasses prejudice and discrimination based on age, primarily affecting older adults who are viewed through a lens of stereotypes and negative assumptions. The ramifications of such prejudice can be far-reaching, often resulting in poorer physical and mental health outcomes for older individuals (Ng et al., 2021; , (Xu et al., 2022; , Donizzetti & Capone, 2023). Higher levels of perceived ageism correlate with increased feelings of social isolation, as older adults may withdraw from social engagements due to stigmatization (Hajek & König, 2024; , Kornadt et al., 2021).
- Younger individuals, who might be unaware of their own biases, are often less equipped to recognize the struggles of their older counterparts, mainly due to societal stereotypes that portray aging in a negative light. They may fail to understand the emotional and psychological toll that ageism inflicts on older individuals, leading to a disconnect in intergenerational relations (Chang et al., 2020; , (Drury et al., 2016). Positive intergenerational experiences, where younger and older individuals engage constructively, can mitigate ageist views and foster empathy, helping younger people see beyond stereotypes to understand the complexities of loneliness experienced by older adults (Drury et al., 2016; , Marques et al., 2020; .
- It is imperative for future interventions to focus on fostering intergenerational understanding and combating ageist stereotypes to bridge the gap between these differing age groups and cultivate a more inclusive outlook on aging (Drury et al., 2016; , Marques et al., 2020; , Yaghoobzadeh et al., 2023).

Literature Review:

EVIDENCE-BASED INTERVENTIONS TO REDUCE LONELINESS

High prevalence and adverse health effects of loneliness in community-dwelling adults across the lifespan: role of wisdom as a protective factor (Lee et a., 2018)

- Investigated the prevalence and health effects of loneliness in adults aged 27–101, and the potential protective role of wisdom.
- Sample: n = 340 community-dwelling adults in San Diego; mean age 62.
- Loneliness Prevalence:
  - 76% had moderate to high loneliness with the highest loneliness occurring in late-20s, mid-50s, and late-80s.
- Loneliness is linked with worse mental health, increased stress, depression, anxiety, cognitive complaints, lower resilience, lower optimism, and worse mental well-being.
- Wisdom as Protective Factor:
  - Strong inverse correlation between loneliness and wisdom (measured by SD-WISE).
  - Wisdom includes emotional regulation, compassion, reflection, and tolerance.
  - Wisdom, living alone, and mental well-being were strongest predictors of loneliness severity.
  - Key Insight: Enhancing wisdom may reduce loneliness and improve quality of life across the lifespan.

Interventions to address social connectedness and loneliness for older adults: a scoping review (O'Rourke et al.,2018)

- This review assesses literature on interventions and strategies to affect loneliness/social connectedness for older adults.
- Interventions often targeted multiple influencing factors, but **mechanisms of action were inconsistently described or tested**.
  - Authors often theorized how interventions might reduce loneliness, but few empirically examined how or why they worked.
  - Most interventions focused on increasing social contact and network size, but did not address the deeper subjective feelings of loneliness (e.g., emotional connection, belonging).
- Most interventions emphasized social network and support, fewer targeted **purposeful activity, despite its importance to older adults**.
  - Despite qualitative evidence that older adults value staying busy and purposeful, only a few interventions targeted this factor explicitly.
- **Need for Theory-Driven Intervention Design**: The review calls for developing and evaluating interventions that are theory-informed and explicitly map components to factors like belonging, care, or emotional support—not just structural social engagement.

Group-Based Social Activities (Dickens et al., 2011)

- Review of 32 studies to determine the effectiveness of interventions designed to alleviate social isolation and/or loneliness in older people.
- Interventions were participatory or non-participatory and offered activity programs, counselling/therapy/education support, internet training, home visits, or service provision.
- Results
  - 79% of group-based interventions and 55% of one-to-one interventions reported at least one improved participant outcome.
  - 80% of participatory produced beneficial effects compared with 44% of non-participatory interventions.
  - 87% of interventions with a theoretical basis reported beneficial effects compared with 59% without.
  - 86% of activity interventions and 80% of support intervention resulted in improved participant outcomes, compared with 60% of home visits and 25% of internet training interventions.
  - 80% of studies with no explicit age targeting reported improved outcomes compared with 58% of interventions that explicitly targeted socially isolated or lonely older people.
- Reference: Dickens, A. P., et al. (2011)

Befriending Programs (Gardiner et al., 2018)

- Review of 38 interventions that paired older adults with volunteers for regular companionship and emotional support.
  - Interventions offered social facilitation, psychological therapies, health and social care, animal interaction, befriending, and leisure/skill development.
- Effective interventions included adaptability, a community development approach, and productive engagement.
  - Interventions involving productive engagement seemed to be more successful in alleviating social isolation than those involving passive activities or those with no explicit goal or purpose (Howat et al. 2004, Pettigrew & Roberts 2008, Toepoel 2013).
  - A community development approach, where interventions are designed and implemented with input from service users, was also noted as an important feature and has previously been associated with successful social isolation and loneliness interventions (Joseph Rowntree Foundation 1998, Findlay 2003, Cattan et al. 2005).
- However, most interventions relied on multiple mechanisms for reducing social isolation and loneliness therefore it is unknown which specific aspects of interventions contributed most strongly to success.
- Reference: Gardiner, C., et al. (2018)

Multi Approach to loneliness(Hoang et al., 2022)

- Systemic review (70 studies) and meta-analysis (44 studies) on loneliness and social isolation interventions for older adults.
- Animal therapy, multicomponent interventions, exercise, technological interventions, and cognitive behavioral therapy and psychotherapy had small to large effect sizes.
- Studies in long-term care demonstrated a large effect size.
- Interventions that target coping strategies (eg, psychotherapy, counseling, CBT, or reminiscence) may modify individual and environmental factors that can influence social behavior to reduce loneliness and improve socialization.
- Interaction with therapy animals, especially dogs provided comfort and companionship and increased social engagement and reduced loneliness.
- Use of video calls and online social platforms facilitated social connections for those with mobility issues and resulted in increased feelings of connectedness.
- Citation: Hoang, P., et al. (2022)

Cognitive Behavioral Therapy (Masi et al., 2011)

- This meta-analysis suggests that correcting maladaptive social cognition offers the best chance for reducing loneliness through enhanced social skills and coping mechanisms.
- Four primary intervention strategies:
  - (a) improving social skills
  - (b) enhancing social support
  - (c) increasing opportunities for social contact,
  - d) addressing maladaptive social cognition.
- Increasing opportunities for social interaction and enhancing social support may address isolation more than loneliness. In contrast, improving social skills and addressing maladaptive social cognition focus on quality of social interaction and therefore address loneliness more directly.
- Citation: Masi, C. M., et al. (2011)

Effects of a program to prevent social isolation on loneliness, depression, and subjective well-being of older adults: A randomized trial among older migrants in Japan (Saito et al.,2012)

- Assessed a group-based intervention program designed to prevent social isolation and improve well-being among older migrants in suburban Tokyo.
- Randomized controlled trial with 63 participants (21 intervention, 42 control) measuring loneliness, depression, subjective well-being, social support, and familiarity with services.
- Intervention consisted of 4 bi-weekly, 2 hr sessions including group discussions, community resource networking, and a local sightseeing tour. Engaged “gatekeepers” (e.g., community workers, service providers) promoted social connectivity and information access.
- Significant improvements in loneliness (↓), subjective well-being (↑), informal social support (↑), familiarity with local services (↑), no change in depression scores with the greatest benefits for participants with moderate to high loneliness at baseline.

Effects of relaxation interventions on depression and anxiety among older adults (Klainin-Yobas et al., 2015)

- Systematic review to review the effects of relaxation interventions among older adults.
- Older adults who received relaxation interventions experienced greater improvements in depression and anxiety than controls in most studies.
  - Music intervention and yoga had the strongest intervention effects on depression and were best at reducing anxiety symptoms. These impacts were sustained from 14 to 24 weeks after the interventions.
- Participants were community-dwelling older adults or residents in facilities; studies mainly from USA, Hong Kong, Singapore, France, India, and Iceland.
- Most interventions involved 4–24 sessions, with variability in delivery mode (group vs. individual).
- Standardized measurement tools like Geriatric Depression Scale (GDS) and State Trait Anxiety Inventory (STAI) were frequently used.
- Music intervention had the largest effect on anxiety reduction (Hedges' g = 2.36).Yoga produced medium-to-large effects for both anxiety and depression. Massage therapy and stress management training also showed moderate positive impacts.

Literature Review:

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Perceived barriers and facilitators to participating in the North Carolina Healthy Food Small Retailer Program: a mixed-methods examination considering investment effectiveness (Boys et al.,2021)

- The study aimed to:
  - (1) examine factors facilitating and constraining implementation of, and participation in, the HFSRP from the perspective of storeowners.
  - (2) measure and evaluate the impact and effectiveness of investment in the HFSRP.
- The analysis uses both qualitative and quantitative assessments of storeowner perceptions and store outcomes, as well as two innovative measures of policy investment effectiveness.
- Qualitative semi-structured interviews and descriptive quantitative approaches, including monthly financial reports and activity forms, and end-of-programme evaluations were collected from participating HFSRP storeowners.
- Eight corner stores in North Carolina that participated in the two cohorts (2016–2018; 2017–2019) of the HFSRP.
- All storeowners reported that the HFSRP benefitted their stores.

How was this done?

- Study Design & Participants – Evaluated 8 small retailers across two cohorts (2016-2019) in North Carolina.
- Program Implementation – Stores received up to $25,000 for refrigeration, shelving, and stocking healthier foods (F&V, dairy, grains, protein).
- Data Collection – Used qualitative interviews & quantitative measures:
  - Storeowner Interviews – Perceptions of program benefits and challenges.
  - Financial Reports – Monthly sales data of healthy foods.
  - End-of-Program Evaluations – Storeowner satisfaction & effectiveness.
- Health Impact Metrics – Healthy Food Supply (HFS) Score & Healthy Eating Index (HEI).
  - Challenges Identified – Delays in equipment delivery, high perishability of fresh foods, and difficulties with inventory management.
  - Key Findings – Sales of healthy foods increased, storeowners saw business benefits, and customers responded positively to healthier options.
  - Impact Analysis – Stores had a 2.31-point increase in HFS scores and a 2.51-point increase in HEI after one year.

Online Pilot Grocery Intervention among Rural and Urban Residents Aimed to Improve Purchasing Habits (Gustafson et al.,2022)

- The primary aim of this pilot intervention was to test whether a three-armed online grocery trial improved fruit and vegetable (F&V) purchases.
- Rural and urban adults across seven counties in Kentucky, Maryland, and North Carolina were recruited to participate in an 8-week intervention in fall 2021.
- A total of 184 adults were enrolled into the following groups:
  - (1) brick-and-mortar "BM" (control participants only received reminders to submit weekly grocery shopping receipts);
  - (2) online-only with no support "O" (participants received weekly reminders to grocery shop online and to submit itemized receipts)
  - 3) online shopping with intervention nudges "O+I" (participants received nudges three times per week to grocery shop online, meal ideas, recipes, Facebook group support, and weekly reminders to shop online and to submit itemized receipts).
- On average, reported food spending on F/V by the O+I participants was USD 6.84 more compared to the BM arm.
- Online shopping with behavioral nudges and nutrition information shows great promise for helping customers in diverse locations to navigate the increasing presence of online grocery shopping platforms and to improve F&V purchases.

How was this done?

Key Steps for Replication

- Study Design & Recruitment – Enroll 184 adults (21+), primary household shoppers, across 7 counties.
- Randomization into 3 Groups:
  - Brick-and-Mortar (BM) – Control group, in-person shopping, submit receipts.
  - Online-Only (O) – Shop online, receive reminders, submit receipts.
  - Online + Intervention (O+I) – Weekly behavioral nudges, meal ideas, recipe sharing, Facebook group.
    - 8-Week Intervention – Track grocery shopping habits, receipts, and engagement.
    - Data Collection –
- Primary Outcome: F&V purchases from grocery receipts.
- Surveys: Barriers to online shopping, shopping preferences.
- Engagement Metrics: Text response rates, Facebook interactions.
  - Retention Strategies – Weekly reminders, incentives ($50 gift card + $10/week).
  - Analysis & Findings – Online grocery shopping nudges increased F&V spending by $6.84 compared to control.

A Randomized Controlled Trial of a Research-Tested Mobile Produce Market Model Designed to Improve Diet in Under-Resourced Communities: Rationale and Design for the Veggie Van Study (Vermont et al.,2022)

- The goal of the VV study is to evaluate the effectiveness of mobile produce markets through a 12-month cluster-randomized controlled trial in 32 communities.
- This protocol presents the original design of a randomized control trial aimed at assessing the effectiveness of the evidence-based Veggie Van (VV) mobile market model.
- The VV model is designed to address multiple dimensions of access to fresh produce by offering a variety of fresh, high-quality fruits and vegetables at a reduced cost.
- A key component of the Veggie Van model is to encourage customers to purchase a bundle of produce (multiple items for a set price) rather than just one or two items separately. Cooking demonstrations, recipes, and nutritional education are also available at the market to help customers better use the produce in their bundles.
- Nine US community partner organizations were asked to partner with four community sites serving lower-income areas.
- Eligible participants are aged ≥ 18, the primary household shopper, live nearby/regularly frequent the site, and have expressed interest in learning about a mobile market.
- The primary outcome, F&V consumption, will be assessed via dietary recall at baseline and 12 months and compared between the intervention and control sites.
- This research advances work on the VV model and methods for mobile market evaluation with the addition of more robust measures and the study design. Determining the effectiveness of the VV model is imperative to justify taking it to scale to enhance the impact of mobile markets.

How was this done?

Key Steps for Replication

- Study Design & Ethics – Define outcomes, secure IRB approval, and register trial.
- Recruit Partner Organizations – Select community-based groups via an RFP process.
- Select Community Sites – Identify 4 sites per partner (e.g., libraries, clinics).
- Randomization – Assign 1 site to intervention (mobile market) and 1 to control (planning process).
- Participant Recruitment – Enroll 30+ adults per site, targeting low-income shoppers (SNAP/WIC users).
- Intervention (Mobile Market) – Sell affordable, bundled F&V, offer cooking demos & SNAP incentives.
- Control (Planning Sites) – Conduct a year-long food access planning process.
- Data Collection – Measure F&V intake, BMI, skin carotenoids, surveys, and sales data at baseline & 12 months.
- Retention Strategies – Use reminders, newsletters, and social media to maintain engagement.
- Data Analysis & Reporting – Compare groups using GLMM models, evaluate feasibility for scaling the program.