

Correlations between loneliness and older age



Introduction

- **Loneliness** is described as an affective and cognitive discomfort or uneasiness arising from perceiving oneself to be alone or otherwise solitary (APA Dictionary of Psychology, 2018).
- Multiple studies have shown loneliness to be linked to **serious health conditions**, including **high blood pressure, heart disease, obesity, weakened immune function, anxiety, depression, cognitive decline, Alzheimer's disease, and increases the risk of premature death** (National Institute on Aging, 2019; Hawkley, 2022; Thomas S.P., 2024; Barnes et al., 2022).

Hypothesis

This study hypothesizes that with **age**, individuals who experience **loneliness** are at a significantly **higher risk** at developing **mental health** conditions

Methods

- Dataset used - Canadian Social Connection Survey (CSCS)
- Sample - 11431 participants
- Data visualizations used - box plots
- Data analysis:
 - Multiple Linear regression
 - Cohen's D Forest plot of Effect sizes
- Assumptions: $\alpha = 0.05$
- Data Wrangling:
 - The self-rated mental health variable(categorical), was converted into a numeric scale for regression analysis.
 - Loneliness scores was converted into a binary variable (loneliness_binary) to classify lonely (0-5) or not lonely (6-9).

Analysis

Variables under consideration:

- **Loneliness score** is recorded using the UCLA Loneliness Scale Score ranging from 3-9, with 9 representing feelings of extreme loneliness.
- **Self Reported Mental Health** ranges from Poor to Excellent

From Figure 1, we see from comparing the median that the higher age groups (81-90) show lower loneliness scores relative to the other groups.

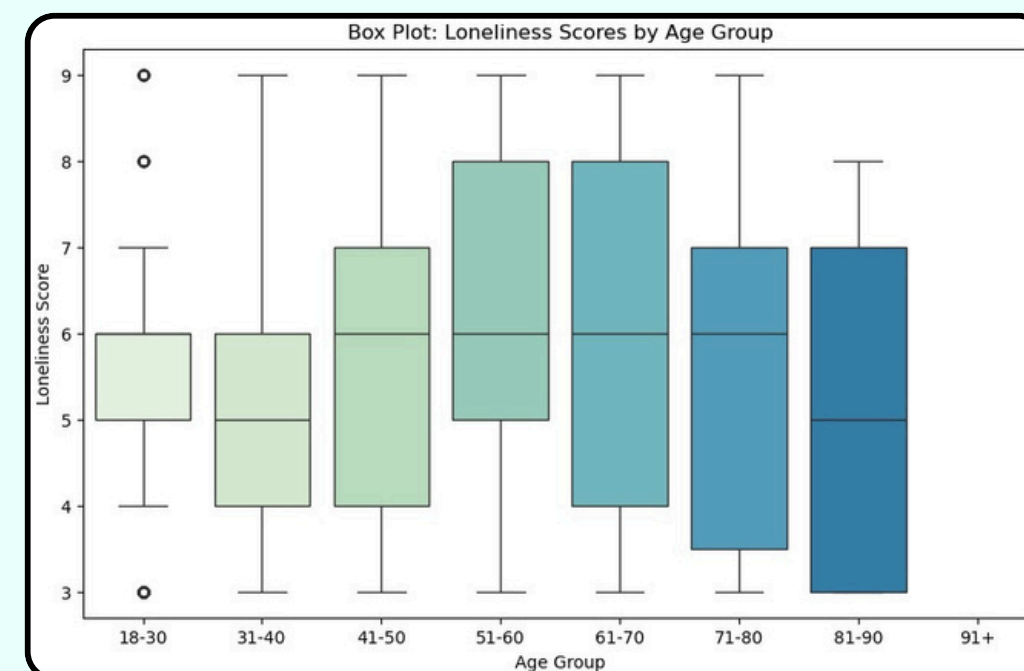


Figure 1: Figure shows box plots with the x-axis representing age groups and the y axis representing the loneliness scores.

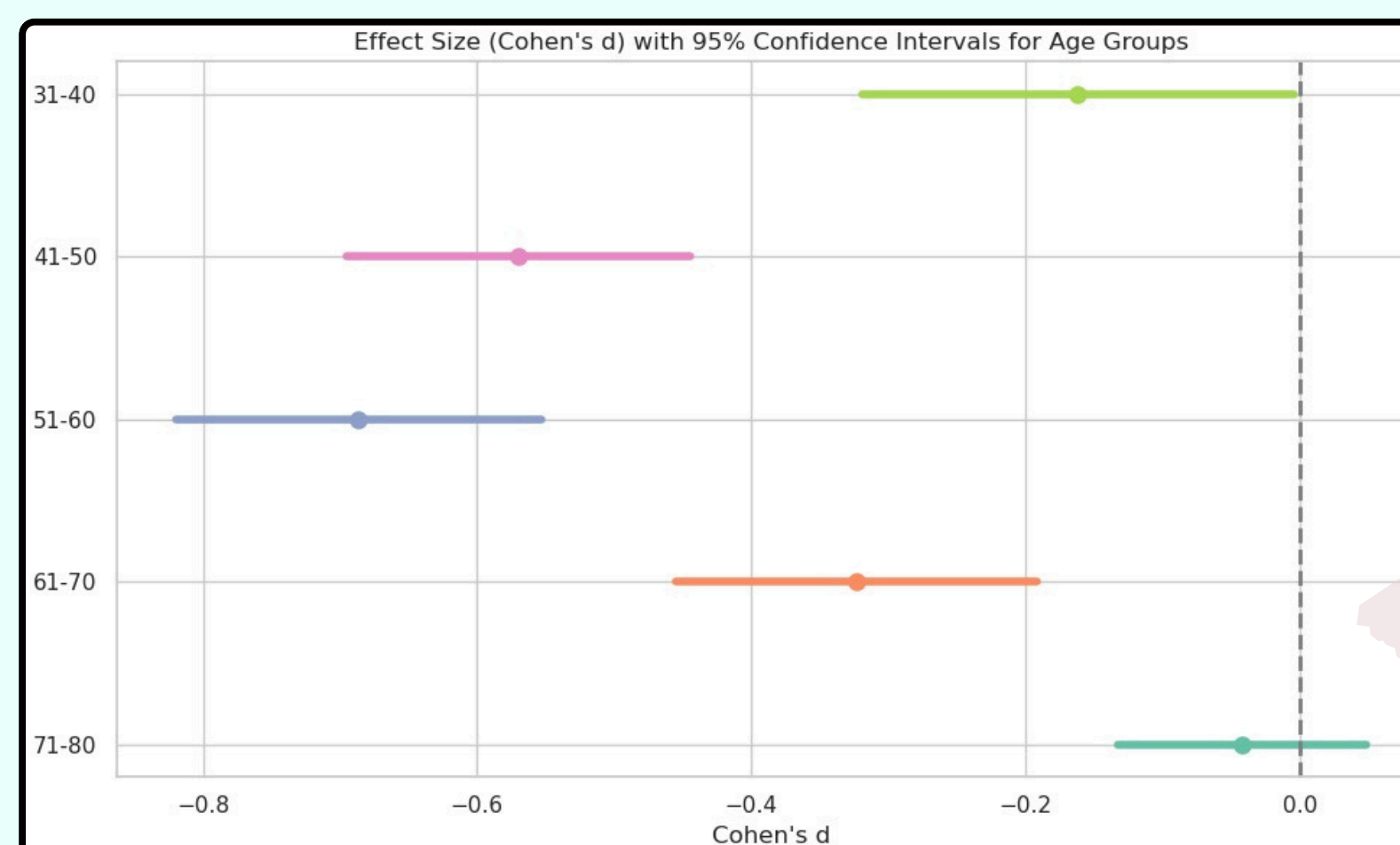


Figure 2: Figure shows an effect size plot with the x axis representing the Cohen's D coefficient and the y axis representing the middle-older age groups. Cohen's D coefficients represent the self rated mental health metric.



Table 1: Table showing the values utilised for the effect size plot in Figure 2

Age Group	Cohen's d	CI Lower	CI Upper
31-40	-0.042	-0.132	0.048
41-50	-0.324	-0.455	-0.192
51-60	-0.686	-0.819	-0.553
61-70	-0.570	-0.695	-0.445
71-80	-0.162	-0.319	-0.004

According to the Effects size plot,

- Age group, 31-40, is not significantly affected by mental health as seen through their Cohen's D coefficient from Figure 2 and Table 1.
- The other age groups (41-50, 51-60, 61-70 and 71-80) all have a significant negative correlation with mental health, as seen by the negative Cohen's D coefficients.

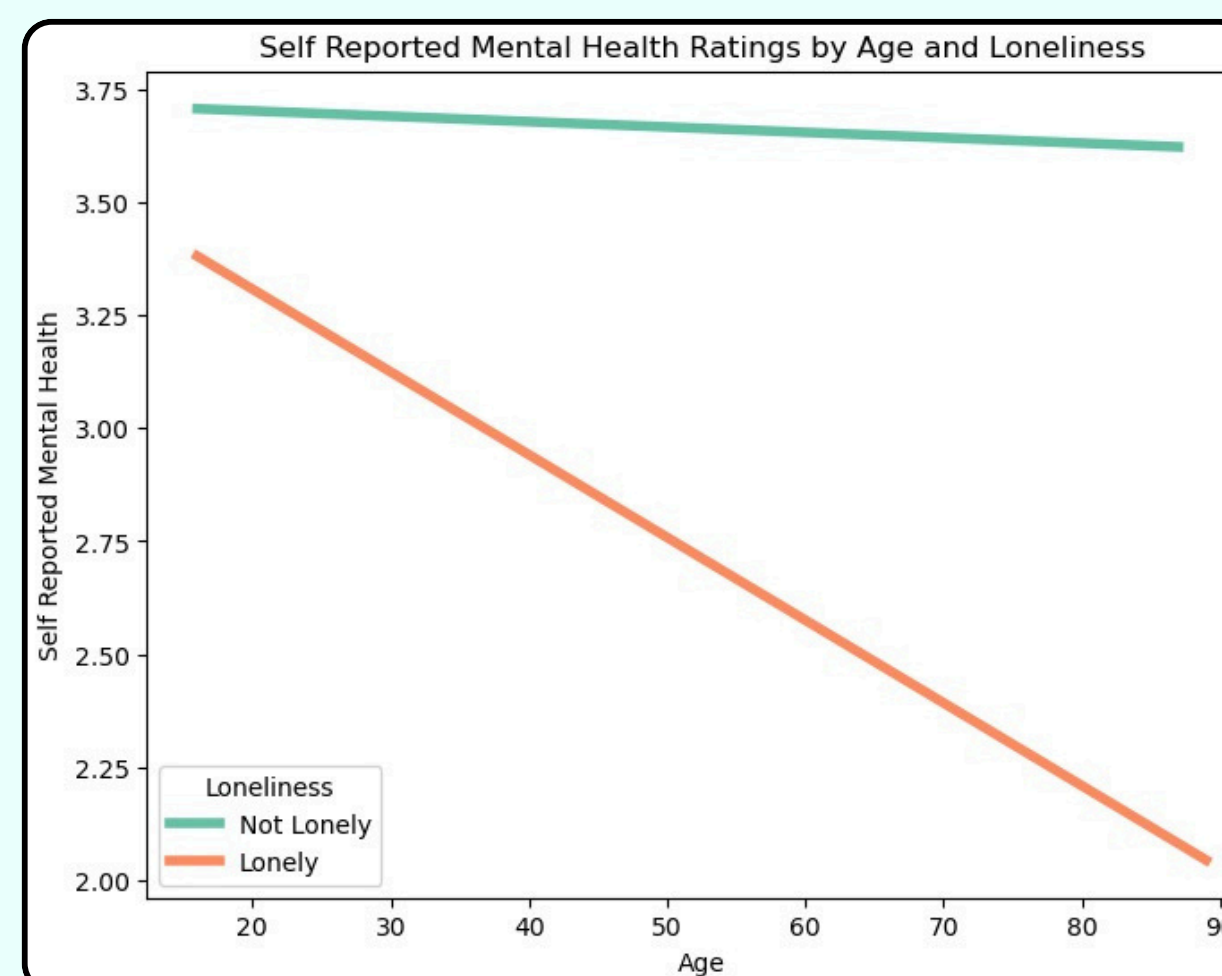


Figure 3: Figure showing a multiple linear regression with the x axis showing age and the y axis showing the self reported mental health measures. The green line shows people who were not lonely and the orange line shows people who felt lonely

	coef	p-value
Age	-0.0012	0.504
Lonely	-0.0520	0.620
Age * Lonely	-0.0171	0.000

The multiple linear regression shown in Figure 3, suggests that older individuals who are lonely experience a larger decrease in self-rated mental health.



Conclusion

- **Loneliness significantly influences mental health** outcomes. The analysis highlighted in this study shows that **older age** groups exhibit a clear pattern of **poorer mental health** scores, which aligns with the notion that increased age may correlate with **greater isolation**.
- The findings suggest the need for targeted mental health interventions in midlife and older populations, with a focus on addressing loneliness and promoting social connections to help mitigate the mental health decline observed in these groups.
- The absence of a significant effect in the 31-40 age group might suggest that younger adults have more coping mechanisms, social networks, or alternative sources of support that buffer against the negative effects of isolation.

Limitations and future directions

- **Narrow Scope of Variables:** Important factors like socioeconomic status, health conditions, and interaction quality are omitted, reducing the ability to fully understand the underlying multifaceted dynamics.
- **Subjectivity in Self-Reported Measures:** Both loneliness and mental health scores rely on self-reported data, which may introduce biases and measurement errors.
- **Further research may explore other factors** influencing mental health across age groups, such as socioeconomic status, physical health, and access to mental health resources.
- This research could be expanded by examining the physical health consequences of social isolation, further emphasizing the negative implications of a lack of social connection.



References

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