Health-related quality of life (HRQoL), defined as a person’s self-perceived health status in relation to their social, cultural, and environmental context, is linked to better health and the ability to deal with adverse life events [1]. Social factors such as loneliness are known to influence HRQoL negatively [2]. The COVID-19 pandemic has disproportionately impacted older adults, with social distancing measures worsening isolation levels [3], which we hypothesize has resulted in lower levels of HRQoL (hypothesis 1).

Further, technology use is linked to improved self-rated health and psychological well-being, alleviating loneliness among older adults, and encouraging behaviors that may lead to better levels of HRQoL [4]. Digital communication tools became critical during the pandemic to remain socially connected and helped prevent social health risks [5], potentially benefiting those with lower HRQoL [6]. We hypothesized that technology use could predict higher HRQoL (hypothesis 2). Moreover, disease containment measures resulted in increased isolation and loneliness among older adults [3], which could impact HRQoL (hypothesis 3). Increased knowledge about how HRQoL was impacted by pandemic loneliness, isolation, and technology use may better inform health care workers, policy makers, and the public.
**Statistical Methods**

Higher scores on the UCLA Loneliness Scale and technology use measures indicated greater loneliness and technology use; lower scores on Lubben’s scale indicated greater isolation. Pearson correlation determined whether lower social isolation (hypothesis 1) and greater technology use (hypothesis 2) were associated with higher HRQoL. Multiple linear regression models were built to evaluate whether loneliness predicted HRQoL after controlling for social isolation and technology use (hypothesis 3).

**Results**

Low social isolation (hypothesis 1) and higher technology use (hypothesis 2) were significantly associated with higher HRQoL (Table 1).

Table 1. Correlational analysis between variables (N=89).

|                  | UCLA Loneliness score | HRQoL a | Technology use | Social isolation |
|------------------|-----------------------|---------|----------------|------------------|
| **UCLA Loneliness score** |                       |         |                |                  |
| Pearson correlation | b                     | −0.499  | −0.631         | −0.853           |
| P value           |                        | <.001   | <.001          | <.001            |
| **HRQoL**         |                       |         |                |                  |
| Pearson correlation |                        | −0.499  |                | 0.497            |
| P value           |                        | <.001   |                | 0.442            |
| **Technology use** |                       |         |                |                  |
| Pearson correlation |                        | −0.631  | 0.497          | —                |
| P value           |                        | <.001   | <.001          | <.001            |
| **Social isolation** |                       |         |                |                  |
| Pearson correlation |                        | −0.853  | 0.442          | 0.557            |
| P value           |                        | <.001   | <.001          | <.001            |

aHRQoL: health-related quality of life.

bNot applicable.

Table 2. Model output and coefficients of multiple linear regression models for health-related quality of life (N=89).

| Independent variables | Model 1 | Model 2 | Model 3 |
|-----------------------|---------|---------|---------|
|                       | b (SE)  | B       | P value | b (SE)  | B       | P value | b (SE)  | B       | P value |
| Loneliness            | −4.07 (0.745) | −0.499 | <.001   | −3.66 (1.436) | −0.449 | .01     | −2.246 (1.490) | −0.275 | .14     |
| Social isolation      | N/A a   | N/A     | N/A     | 0.559 (1.671) | 0.059 | .74     | 0.369 (1.62)  | 0.039 | .82     |
| Technology use        | N/A     | N/A     | N/A     | N/A     | N/A     | N/A     | 1.071 (0.407) | 0.302 | .01     |
| Intercept             | 757.851 (37.75) | N/A     | <.001   | 723.318 (109.926) | N/A | <.001   | 536.117 (128.009) | N/A | <.001   |
| $R^2$ ($\Delta R^2$) | 0.249   | N/A     | <.001   | 0.250 (0.001) | N/A | .74     | 0.305 (0.055) | N/A | .01     |
| $F$ test (df)         | 29.871 (1.90) | N/A     | <.001   | 14.844 (2.89) | N/A | <.001   | 12.865 (3.88) | N/A | <.001   |

aN/A: not applicable.
**Discussion**

Few studies to date have examined the impact of social isolation, loneliness, and technology use together on HRQoL in older adults in England during the pandemic. We found that loneliness negatively impacts HRQoL, and technology use positively impacts it. Although social isolation has been linked to HRQoL, it had a low impact when loneliness was accounted for. Technology use was related to higher HRQoL, aligning our findings with the results of previous studies [9]. However, the magnitude of the positive effect was notable when considering pre-pandemic studies [10]. Loneliness impacted HRQoL even when social isolation and technology use were accounted for, in agreement with previous literature [10]. The cross-sectional design prevented us from determining causality and was the main limitation of this study. Our study has relevant implications for health professionals such as health psychologists seeking to improve the HRQoL of older adults, especially through adverse life events like the pandemic or other circumstances that would put older adults in a similar situation where their mobility has been restricted. Our study informs that loneliness should be addressed, in conjunction with increasing technology use, in interventions. The absence of longitudinal studies examining the same cohort before and after the pandemic makes this interpretation speculative. Further research is needed to determine causes, and future studies need to examine pandemic-linked long-term impacts on the mental health and well-being of older adults.

**Conflicts of Interest**

None declared.

**References**

1. Gandek B, Ware JE, Aaronson NK, Apolone G, Bjorner JB, Brazier JE, et al. Cross-validation of item selection and scoring for the SF-12 Health Survey in nine countries: results from the IQOLA Project. International Quality of Life Assessment. J Clin Epidemiol 1998 Nov;51(11):1171-1178. [doi: 10.1016/s0895-4356(98)00109-7] [Medline: 9817135]
2. Salihu HM, Adegoke K, Turner D, Al Agili D, Berry EL. Social support and health-related quality of life among low-income women: findings from community-based participatory research. South Med J 2017 Apr;110(4):270-277. [doi: 10.14423/SMJ.00000000000000635] [Medline: 28376241]
3. Groarke JM, Berry E, Graham-Wisener L, McKenna-Plumley PE, McGlinchey E, Armour C. Loneliness in the UK during the COVID-19 pandemic: cross-sectional results from the COVID-19 Psychological Wellbeing Study. PLoS One 2020;15(9):e0239698 [FREE Full text] [doi: 10.1371/journal.pone.0239698] [Medline: 32970764]
4. Goethals L, Barth N, Guyot J, Hupin D, Celarier T, Bongue B. Impact of home quarantine on physical activity among older adults living at home during the COVID-19 pandemic: qualitative interview study. JMIR Aging 2020 May 07;3(1):e19007 [FREE Full text] [doi: 10.2196/19007] [Medline: 32356777]
5. Balki E, Hayes N, Holland C. Effectiveness of technology interventions in addressing social isolation, connectedness, and loneliness in older adults: a systematic umbrella review. JMIR Aging (forthcoming) 2022:1.
6. Ang S, Chen TY. Going online to stay connected: online social participation buffers the relationship between pain and depression. J Gerontol B Psychol Sci Soc Sci 2019 Aug 21;74(6):1020-1031. [doi: 10.1093/geronb/gby109] [Medline: 30260444]
7. Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care 1992 Jun;30(6):473-483. [Medline: 1593914]
8. Russell DW. UCLA Loneliness Scale (Version 3): reliability, validity, and factor structure. J Pers Assess 1996 Feb;66(1):20-40. [doi: 10.1207/s15327752jpa6601_2] [Medline: 8576833]
9. Khalaila R, Vitman-Schorr A. Internet use, social networks, loneliness, and quality of life among adults aged 50 and older: mediating and moderating effects. Qual Life Res 2018 Feb;27(2):479-489. [doi: 10.1007/s11136-017-1749-4] [Medline: 29210015]
10. Berg-Weger M, Morley JE. Editorial: loneliness and social isolation in older adults during the COVID-19 pandemic: implications for gerontological social work. J Nutr Health Aging 2020;24(5):456-458 [FREE Full text] [doi: 10.1007/s12603-020-1366-8] [Medline: 32346678]

**Abbreviations**

HRQoL: health-related quality of life.
