

Computer use and well-being among older adults: The role of environmental context

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BACKGROUND

- National studies indicate computer use among adults age 65+ increased from 21% in 2000 to 42% in 2005.
- Most studies examining computer use among older adults compare them to younger populations, thereby ignoring heterogeneity among older adults. One dimension of heterogeneity is the environmental context, e.g. greater vs less access to specific social and built environmental resources essential for well-being.
- Findings have been inconsistent in identifying a link between computer use and well-being among older adults: indicating both no association and health promotive effects (e.g., less depression, loneliness).
- Computer use among older adults has also been linked with receiving more social support via serving as a bridge to non-proximate social support systems.
- It may be that the environments in which older adults are embedded influence if and to what extent computers play a role in promoting well-being.

Present Study: We capitalize on the availability of a large nationally representative sample of adults age 70+ to investigate if computer use is associated with multiple indicators of older adults' well-being, and investigate how this link is moderated by the various environmental contexts in which older adults are embedded.

Research Questions

- 1) Is computer use associated with multiple indicators of older adults' well-being? *H: Older adults who report using a computer will report better self-rated health, worry less about independence, and be less lonely.*
- 2) Is the link between older adults' computer use and well-being moderated by environmental context? *H: Among older adults living in contexts with fewer resources, the positive link between computer use and well-being will be stronger compared to those living in contexts with more resources.*

METHODS

Data were drawn from the University of Michigan's Survey of Consumer Attitudes (SCA). A nationally representative sample of approximately N=500 U.S. households are selected monthly via random digit dialing to participate in a telephone survey. From September 2010 to June 2011 a senior living supplemental questionnaire was administered to SCA respondents age 70+ and pooled together for a total sample of N=629.

Measures: Outcome-Well-Being: 1) *Self-rated health* ('compared to other people your age, how would you rate your health overall?') measured from 1=very poor to 5=very good. 2) *Worry about lack of independence*, measured from 1=not worry at all to 4=worry a lot. 3) *Loneliness* ('how often do you feel lonely') measured from 1=never to 4=very often. Independent Variable-Computer Use, 'Do you use a computer' (0=no; 1=yes). Moderators - Environmental Context measured as how convenient home is to social and built environmental resources measured from 1=not at all to 4=very convenient) including 1) family, 2) friends, 3) place of worship, and 4) grocery/drug stores. Co-Variates: age, gender, race/ethnicity (0=non-Hispanic white; 1=non-white), educational level, married/live with partner, and have difficulty getting around community because of a physical or mental health problem (0=no; 1=yes have difficulty).

Analysis Strategy: RQ1: Regression analysis was conducted predicting each well-being indicator including computer use, the four environmental context variables, and six covariates as independent variables. **RQ2:** Four interaction effects were created by multiplying an effect coded (-1, 1) version of the computer use variable by mean centered environmental context variables. Interaction effects were considered statistically significant if when entered into the model, the model-fit (adjusted r-square) improved significantly (p-value<.05). Significant interactions were plotted and simple slopes analysis conducted.

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RESULTS

Table 1. Sample Characteristics

	%	<i>M</i> (<i>SD</i>)	Range
Age		77.8 (6.0)	70-96
Gender (% Female)	58.0		
Race/Ethnicity (% Non-white)	8.3		
Education		3.8 (1.3)	1-6
Married/Live with Partner (%)	46.5		
Have Difficulty Getting Around Community (% yes)	10.3		
Environmental context (Convenient to...)			
Family		3.2 (1.0)	1-4
Friends		3.5 (0.7)	1-4
Place of Worship		3.6 (0.6)	1-4
Stores		3.6 (0.7)	1-4
Computer use (% yes)	51.8		
Well-Being			
Self-Rated Health		4.2 (0.9)	1-5
Worry about Independence		1.9 (0.9)	1-4
Loneliness		1.9 (0.9)	1-4

RQ1: Computer use → older adults' well-being?

→ Partial support: Only loneliness was significantly associated with computer use.

→ Older adults who use computers reported less loneliness ($b = -0.24$; $SE = 0.08$; $Beta = -0.14$; $p < .01$).

RQ2: Moderating role of environmental context?

→ Partial support: three indicators of environmental context (*convenience of home to family, friends and place of worship*) significantly ($p < .05$) moderated the computer use - self-rated health link.

→ Among respondents reporting their home was less convenient to family, friends, and their place of worship, computer use was associated with better health at $p < .10$ level. In contrast, among those living more convenient to these resources, computer use was not associated with self-rated health.

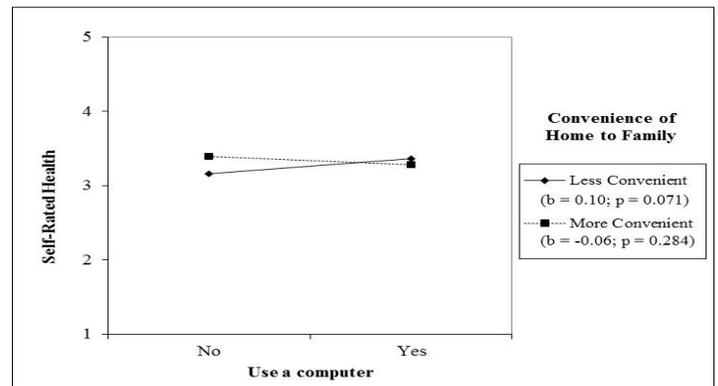


Figure 1. Moderating Role of Convenience of Home to Family on Computer Use - Self-Rated Health Link

DISCUSSION

- Computer use in this sample (52%) is consistent with other national studies. For example, Tun and Lachman (2010) found that in 2005/06 36% of older adults age 75-85 reported using a computer and 60% age 65-74.
- Computer use was associated with less loneliness. Computers may help older adults connect with less proximate resources, be informed about activities nearby, and facilitate new connections.
- The association between computer use and better self-rated health was present only in contexts with fewer social (family and friends) and built (place of worship) environmental resources. Those in worse health may move closer to family and others for support or computer use may serve as a bridge and connection to older adults' non-proximate social support systems. In particular, computers may facilitate increased contact for older adults with family and friends as well as help cope with geographic distance and mobility difficulties.
- How environmental context may amplify or diminish the positive association between computer use and well-being among older adults may provide insight into why older adults use computers. For example, studies have found that like younger people, older adults use computers and the internet for a range of purposes. Communication and social support are two of the most common reasons among older adults.
- Results highlight vulnerable populations and unique contexts in which computer use can be most effective in helping to optimize aging and offer unique promise for future interventions.
- Limitations of this study include use of cross-sectional data and focusing on any versus no computer use. Future longitudinal studies with more detailed information on computer use (e.g., frequency, duration, purpose) can help refine understanding of how computer use influences well-being and how this link varies across environmental contexts.