

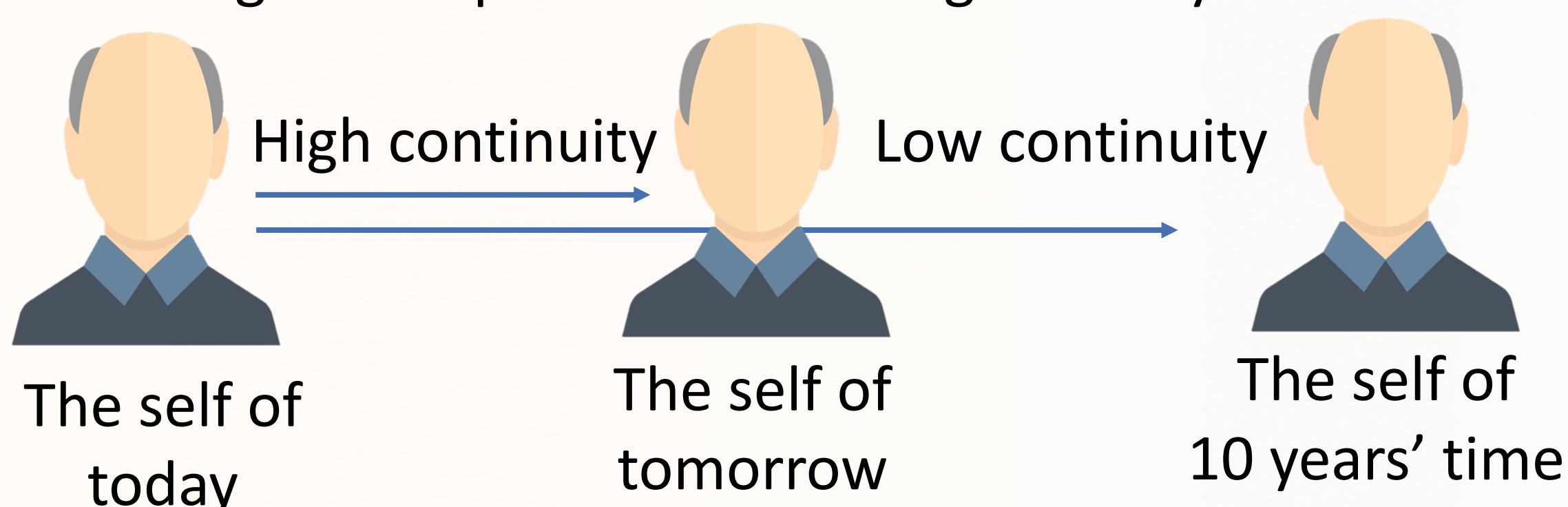
Poor continuity to the future self is associated with reduced acceptance of camera-based active and assisted living technologies among older adults

Natalie Tham An Qi, Anne-Marie Brady, John Dinsmore

Trinity Centre for Practice and Healthcare Innovation, School of Nursing and Midwifery, Trinity College Dublin, Republic of Ireland

Background

Camera-based active and assisted living (AAL) technologies are potentially transformative for ageing populations but are hardly accepted by older adults.¹ While sociodemographic and utilitarian influences on acceptance are well-established,² psychological antecedents remain understudied. One plausible psychological reason underpinning older adults' poor acceptance of camera-based AAL technologies is an **inability to identify with their future selves**. Specifically, to the extent that the costs of using the technology (e.g., privacy violations) are relatively immediate whilst the associated benefits (e.g., improved wellbeing) are largely deferred into the future, older adults who have little **psychological continuity to their future selves**³ may be relatively unwilling to accept these technologies today.



Aim and Objectives

This study aimed to examine the association between **future self-continuity**³ – i.e., the sense of psychological connectedness between present and future selves – and older adults' acceptance of camera-based AAL technologies.

A secondary objective was to examine the **mediating role of the costs (e.g., privacy concerns) and benefits (e.g., perceived usefulness)** of present-day usage of camera-based AAL technologies on the relationship between future-self continuity and acceptance.

References

- Demiris G, Hensel BK, Skubic M, Rantz M. Senior residents' perceived need of and preferences for "smart home" sensor technologies. *Int J Technol Assess Health Care*. 2008;24(1):120-124. doi:10.1017/S0266462307080154
- Arthanat S, Chang H, Wilcox J. Determinants of information communication and smart home automation technology adoption for aging-in-place. *J Enabling Technol*. 2020;14(2):73-86. doi:10.1108/jet-11-2019-0050
- Hershfield HE. Future self-continuity: how conceptions of the future self transform intertemporal choice: Hershfield. *Ann N Y Acad Sci*. 2011;1235(1):30-43. doi:10.1111/j.1749-6632.2011.06201.x
- Sokol Y, Serper M. Development and validation of a Future Self-Continuity Questionnaire: A preliminary report. *J Pers Assess*. 2020;102(5):677-688. doi:10.1080/00223891.2019.1611588
- Jaschinski C, Ben Allouch S, Peters O, Cachucho R, van Dijk JAGM. Acceptance of technologies for aging in place: A conceptual model. *J Med Internet Res*. 2021;23(3):e22613. doi:10.2196/22613
- Mihailidis A, Cockburn A, Longley C, Boger J. The acceptability of home monitoring technology among community-dwelling older adults and baby boomers. *Assist Technol*. 2008;20(1):1-12. doi:10.1080/10400435.2008.10131927

Methodology

Study design

Cross-sectional quantitative study conducted on online survey platform Qualtrics

Participants

Older adults aged 60 and above who were **community-dwelling** (i.e., not living in residential care or assisted living) were recruited via the online crowdsourcing platform Amazon Mechanical Turk ($n = 183$, $M_{age} = 64.2$, 51.9% male)

Measures

- Demographic items
- Future Self-Continuity Questionnaire (FSCQ)**⁴ comprising subscales measuring:



- Privacy concerns**⁵ surrounding camera-based AAL technologies
- Perceived usefulness**⁵ of camera-based AAL technologies
- Acceptance** of camera-based AAL technologies (operationalised as willingness to install the technology in their own home today⁶)

Results

- Covariate-adjusted logistic regression models revealed that having **vivid** ($OR = 3.19$, $p < .001$, 95%CI [1.87, 5.45]) and **positive** ($OR = 2.83$, $p < .001$, 95%CI [1.64, 4.87]) **impressions of the future self** were associated with significantly increased likelihoods of self-reported acceptance of camera-based AAL technologies.
- Felt similarity to the future self did not significantly influence acceptance ($OR = 1.43$, $p = .141$, 95%CI [.887, 2.31]).
- Covariate-adjusted mediation models revealed **significant indirect effects of future-self vividness** ($\beta = .460$, 95% CI [.102, .991]) as well as **future-self positivity** ($\beta = .565$, 95% CI [.200, 1.13]) on acceptance **through perceived usefulness**. The direct effect of future-self vividness on acceptance was significant, indicating **partial mediation**. The direct effect of future-self positivity on acceptance was non-significant, indicating **full mediation**.

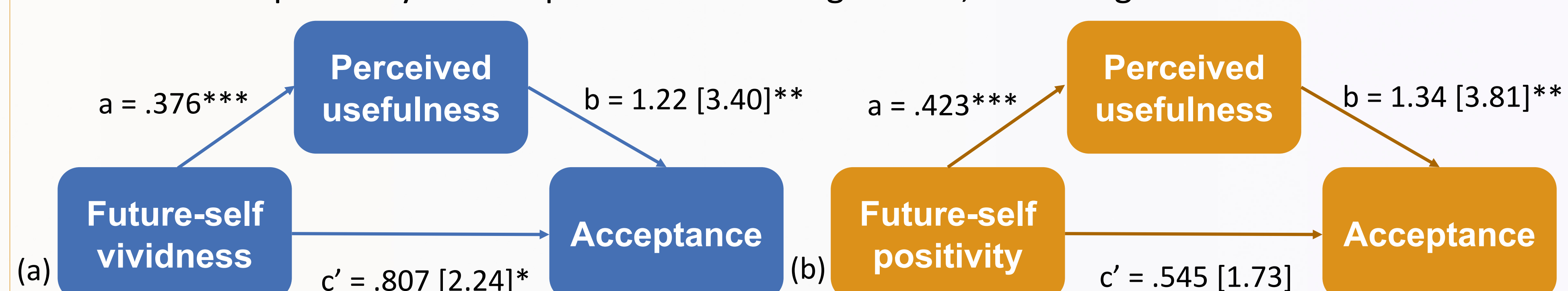


Figure 1. (a) Partial and (b) full mediation models controlling for chronic disease status and income as covariates. Coefficients for paths b and c' represent log odds. [odds ratios]. Coefficients for path a represent unstandardised regression weights. *** $p < .001$, ** $p < .01$, * $p < .05$

Conclusions

- Strategies that enhance the vividness and positivity with which older adults view their future selves may enhance the acceptability and consequent effectiveness of camera-based AAL technologies.
- Insofar as conceptions of the future self are involved in AAL-relevant decision-making, such strategies may benefit the acceptance of AAL technologies more generally.