

OPP: HOUSING & DAILY LIVING

Benefit and usability of a senior tablet and an emergency smartwatch for older adults and their relatives: Results from a prospective user study

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Introduction Assistive technologies (ATs) have the potential to promote quality of life and independent living of older adults but also to relieve the burden of caregivers and relatives. However, evidence on effectiveness of ATs in the real-world application remains scarce. We conducted a prospective, exploratory user study to test the perceived benefit and satisfaction with different ATs in the real-world environment. **Methods** Community-dwelling adults aged ≥ 65 and their relatives tested either a tablet with a simplified interface or a smartwatch with programmable emergency contacts for eight weeks in their everyday life. Benefits and usability of AT were assessed by all older adults and their relatives using different assessment tools employed prior to and/or after the intervention. Outcome measures included the Technology Usage Inventory, Quebec User Evaluation of Satisfaction with Assistive Technology 2.0 and Canadian Occupational Performance Measure (COPM). **Results** 17 older adults and 16 relatives were included. Participants in the smartwatch group were slightly frailer and more dependent and reported non-significantly higher technology acceptance and satisfaction scores than those of the tablet group ($P > .05$). Relatives had significantly higher ratings on the item intention to use than older adults in the tablet group ($t = 3.3$, $P = .006$). Identified everyday issues with the COPM included contact/communication and entertainment/information for the tablet, safety and getting help in emergency situations for the smartwatch, and AT usability for both devices. In the smartwatch group, performance ($t = 3.5$, $P = .008$) and satisfaction ($t = 3.2$, $P = .01$) in these domains improved significantly, whereas changes experienced by the tablet group were not statistically significant (all $P > .05$). **Conclusions** This study highlights remaining obstacles for a widespread and effective application of ATs in everyday life of older adults and their relatives. While the results do not provide evidence for a positive effect regarding communication deficits, benefits could be shown for the area of safety. To enhance the acceptance and impact of ATs, it is essential to consider the preferences, challenges, and objectives of not only frail older adults but also their relatives and caregivers during the technological design process.

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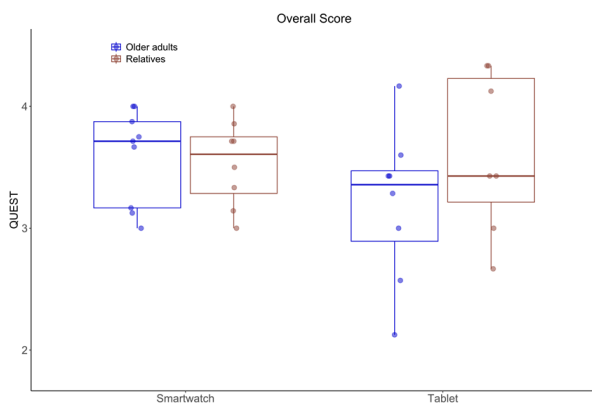


Figure 1. QUEST score (scale from 1 to 5) of older adults and their relatives for the tablet and smartwatch group. Higher values represent higher satisfaction. Dots represent data from individual subjects.

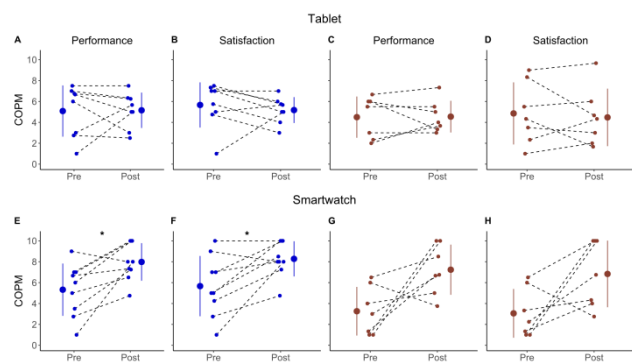


Figure 2. COPM score (scale from 0 to 10) of older adults and their relatives for the tablet and smartwatch group. Higher values represent higher self-perceived performance and satisfaction. Small dots represent data from individual subjects. Bigger dots and error bars represent mean \pm standard deviation.