User experiences following 30 days of self-administered fall risk assessment via a mobile application

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Purpose Although falling is one of older adults' greatest fears (Whipple, Hamel & Talley, 2017) and a leading cause of accidental injury and death (Bergen, 2016), an estimated 30% of older adults lack a comprehensive understanding of their actual fall risk (Delbaere et al., 2010). Fall risk embodies both physical and psychological processes - the physical and perceived ability to meet the demands presented by an environment. Mobile technology applications can now assess fall risk (Roeing et al., 2017). However, the implications of daily assessment on one's awareness of fall risk is not clear. The purpose of this study is to explore older and younger adults' experiences of self-assessing their fall risk via a mobile application every day over a 30-day period. We consider the influence of daily assessment on perceived change in daily activities, feedback from the application that would be most helpful, and variation experiences across younger and older adult users. **Method** We use qualitative and quantitative data from the Daily Balance Project - a 30-day study of subjective and objective fall risk. A total of 20 older (Mage = 80.1, SD = 5.09) and 5 younger (Mage = 24.8, SD = 3.70) adults were recruited into the study. Every morning for 30 consecutive days, following a comprehensive fall risk assessment, participants re-ported their balance confidence (Activities-Specific Balance Confidence Scale) and then performed five standardized balance assessments guided by the Steady Application. A follow-up fall risk assessment and semi-structured interview were completed upon completion of the 30-day study. Qualitative data were transcribed and coded by the study team to identify emerging themes. The clustering of themes across age groups and baseline fall risk were considered. **Results and Discussion** Neither older nor younger adult participants described a fear of falling, but older adults discussed an awareness of falling (e.g., avoiding situations that would increase the risk of falling). Both older and younger adults reported their ability to maintain their balance as stable. Older adults acknowledged that their strength and ability varied from day-to-day. For some older adults, the performance of daily assessments provided a sense of accomplishment as their ability to complete the tasks improved. Older adults reported interest in receiving feedback that they were on the right track, how their performance compared to others their age, and additional insight that would help them manage other conditions (such as response to medication). Younger adults considered the needs of older adults when providing feedback on the application (usability, testing validity). Participants described a potential interest in visual (performance summary) and audial (acknowledgement of a job well done) feedback modalities. Mobile technologies make the self-assessment of fall risk possible in one's own home. The results from this study suggest that daily self-assessment in itself provides feedback that could help individuals manage fall risk in daily life. Our findings emphasize the importance of a person-centered approach (that accounts for participants' needs, awareness, and goals) when designing the feedback component of applications that assess fall-risk.

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