

POSTER

Housing and Daily Activities

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Purpose Environmentally-embedded intelligent sensor systems offer a feasible, cost-effective, and convenient approach to early illness detection¹. A perceived drawback to embedded sensor systems is that they might be unwelcome in one's home due to privacy concerns; however, the results of research are mixed in this area²⁻⁵. Older adults may be willing to compromise certain levels of privacy in order to remain independent. The purpose of this study was to explore how an environmentally-embedded sensor system was perceived and experienced by older adults living with the system in long-term care facilities and also by their family members.

Methods From 2013 to 2016, a prospective intervention study was conducted to measure the effectiveness of using sensor data to detect early signs of illness or functional decline in older adults living in 13 long-term care facilities in Missouri (intervention group = 86; comparison group = 85)^{1,6}. One component of this study was to obtain a consumer perspective on living with an environmentally embedded sensor system. Periodic semi-structured interviews were conducted at 5 points in time with 55 study participants (43 female, 12 male, 52 Caucasian, 3 African American) living with the sensors in order to understand their perceptions of the technology's usefulness and its impact on their daily living, health, and privacy. Interviews were also conducted with 13 participants' family members to obtain their impressions of the technology. Using a constant comparative method, researchers independently coded transcripts and conferred to identify themes.

Results & Discussion The environmentally-embedded intelligent sensor system was well-tolerated, with limited impact on daily living. Privacy concerns were minimal and outweighed by the benefits of the sensor system. Participants and family members perceived sensors to be helpful and unobtrusive, and neither group expressed privacy concerns. Both groups were most interested in the system's ability to generate an alert after a fall. Participants indicated a preference toward receiving timely post-fall assistance. The system's benefits were reported to outweigh any diminishment of privacy for this group of older adults. Participants were willing to share their sensor-derived health data with family members, health care providers, and researchers. Future research should focus on the impact of sensor systems across diverse populations.

References

1. Rantz MJ, Skubic M, Koopman R, Alexander G, Phillips L, Musterman K, Back J, Aud M, Galambos C, Rainer D, Miller S. *Journal of Gerontological Nursing*. 2012;38(4):18-23
2. Galambos C, Rantz M, Back J, Jun JS, Skubic M, Miller SJ. *Computers, Informatics, Nursing*. 2017;35(7):331-337
3. Boise L, Wild K, Mattek N, Ruhl M, Dodge HH, Kaye J. *Gerontechnology*. 2013;11(3):428
4. Pol M, van Nes F, van Hartingsveldt M, Buurman B, de Rooij S, Kröse B. *The Gerontologist*. 2014;56(3):485-493
5. Berridge C. *The Gerontologist*. 2015;56(5):807-816
6. Stone E, Skubic M. *IEEE Journal of Biomedical and Health Informatics*. 2015;19 (1):290-301

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