

How Older Adults Respond to Home-based Monitoring: Results of a Survey from the Oregon Bio-Medical Research Partnership Study

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BACKGROUND

Increasingly, researchers are using computers and home monitoring technologies to study older adult behavior and to identify changes in health and behavior in home settings. Yet we have little information from older adults about their attitude toward monitoring. In our previous studies, we gathered qualitative data on older adults' perceptions about home- and computer-monitoring. We found that older adults generally see value in such monitoring and have relatively few concerns about privacy.* Reported here are baseline survey data gathered in the Biomedical Research Partnership Study (BRP). The survey is intended to gather data on elders' computer use and attitudes towards activity and computer monitoring and to determine if there are differences in attitudes according to gender, age, living arrangement, race or cognitive status.

* Wild K, Boise L, Lundell J, Foucek A, JI Appl Ger 2008; 27:181-200.

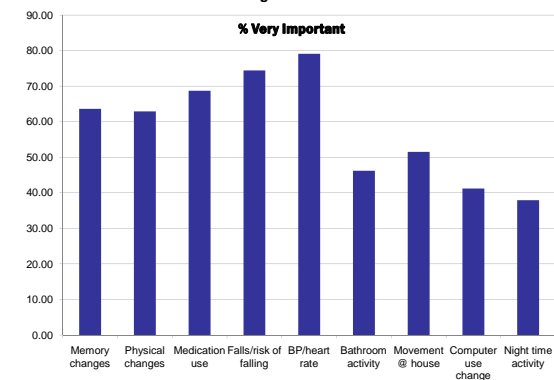
METHODS

The technology survey was developed for use by participants in technology projects of ORCATECH. In this survey, we assess:

- Frequency and type of computer use
- Subjects' attitudes toward monitoring for detecting changes in behavior and functioning
- Attitudes regarding sharing of monitoring information and concerns about privacy

The baseline survey was administered to 153 subjects. Subjects are community-dwelling persons with normal cognition or mild cognitive impairment.

Nine health activities were represented. Subjects rated how important monitoring of these would be for older adults in general.



Biomedical Research Partnership Study (BRP)

BRP is a NIH-funded research study that uses computers and motion sensors installed in homes to monitor activity of healthy, non-demented ($CDR \leq 0.5$) seniors in their homes. Subjects are clinically assessed in person with "gold" standard cognitive, behavioral, functional and motor tests. Broadband Internet connection was installed in each home.

If not computer literate, subjects are trained with a 6-session standard curriculum. Subjects respond to weekly on-line health and activity questionnaires. Secure web-based software allows remote management of longitudinal data streams, the status of the sensor net and seniors.



Motion sensors placed in home to track activity



Strategically placed arrays of passive infra-red motion sensors, contact door sensors, and home PC.

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* Mild cognitive impairment (MCI) was defined using Peterson criteria (Peterson RC. JI Intern Med 2004;256:183-194).

RESULTS

Baseline Subject Characteristics

Age	83.0	5.3 yrs, 67-93
Education		
≤ 12 years	20.1%	
13-16 years	50.4%	
17 years or more	29.5%	
Sex	75.7%	
Female		
Male	24.3%	
Ethnicity		
White	80.0%	
Black	15.7%	
Asian	4.3%	
Living status	52%	live alone
MMSE	28.5	1.5, 22-30
Computer Use		
Daily	58.9%	
Weekly	35.7%	
Monthly/Never	5.5%	
Internet Use		
Daily	29.4%	
Weekly	42.0%	
Monthly/Never	28.7%	
MCI *	20.7%	
IADL		
0	93.5%	
≥ 1	6.5%	

- We found that men were significantly more concerned than women regarding possible misuse of home monitoring data, i.e., that information "could be given to people or organizations that have no right" (81% vs. 59%, $p=.02$) and that information could be given to people or organizations that would use it in a harmful way (81% vs. 62%, $p=.04$).
- Subjects with normal cognition were less likely than those with MCI to be willing to have information from activity monitoring shared with other family members (87% vs. 100%, $p = 0.04$) and with doctors (72% vs. 89%, $p = 0.03$).

CONCLUSIONS

In this baseline study on use of and attitudes towards home monitoring technologies, we found no differences based on age or race. However, we did find that:

- Subjects declared physiologic monitoring (BP/heart rate) most important followed by risk of falling and medication use.
- Subjects with Mild Cognitive Impairment were more willing than cognitively intact subjects to have information shared with their doctor and family members.
- People living alone use computers less frequently than those living with others.

Further research is needed to explore the implications of use and attitude differences revealed by this data. The survey will be repeated annually to determine if there is change with exposure to in-home monitoring technology in computer use, in attitudes towards the utility and sharing of data, and about privacy concerns.