

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

DIVISION OF BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION
Board on Behavioral, Cognitive, and Sensory Sciences

Planning Meeting for Mobile Technology for Adaptive Aging

The National Academies of Sciences, Engineering, and Medicine
Keck Building, Room 204
500 Fifth Street, NW, Washington D.C.

May 9, 2019

WORKSHOP GOALS

The National Institute on Aging (NIA) has a significant research interest in how technology could be employed to enhance the lives of older adults. Since the publication of the workshop volume, *Technology for Adaptive Aging* (National Research Council, 2004), transformative advances in the scope and sophistication of technology used every day by all of us, including older adults, have taken place. One major area where transformative work is being done and has the potential to enhance the lives of older adults is the use of mobile technology/smartphones. Currently, mobile technologies are an important tool in developing social interaction and connectedness.

Although mobile health (or mHealth) has rapidly developed over the past decade, significant challenges remain both in the design of effective applications (whether to deliver interventions or allow for passive or active monitoring) and in making these devices usable and desirable by older adults. Despite the significant “digital divides” between advantaged and disadvantaged groups (broadly including older adults), smartphones have seen relatively high rates of adoption across racial and ethnic groups and in most age groups. Adoption rates have been lower in adults 55 and over, but as of 2017, 77% of all adults now own a smartphone. In community-based estimates from Pew, only 42% of those aged 65 and older report having or using smartphones, and this percentage declines to 17% for those aged 80 and older. Socioeconomic differences are seen in smartphone use, with those in lower socioeconomic status groups having less access to smartphones; in addition, they are more likely to have ‘pay as you go’ usage plans. It should also be noted that, among all Americans who are online, there is surprisingly little difference in what activities are pursued online. Similarly, mobile usage shows relatively small racial or ethnic disparities, and even urban-rural differences are declining over time.

With this as a backdrop, this workshop will:

1. Improve current knowledge base regarding mobile interventions for health and social connectedness in older adults. Given the degree of digital device ownership/use, it is clear that mobile devices should be a preferred mode for the dissemination and implementation of interventions for health and social connectedness. There are still a number of open questions:

- a. What applications are available, and how, if at all, has their efficacy been tested?
How can we expand on the cutting-edge research that applies behavioral economics and related behavioral science to health to develop seeding and cultivating new ideas that could further improve the effectiveness of future interventions?
 - b. To the extent that we are beginning to see real success stories for intervention in other age groups, how should we adapt these to target midlife and aging populations?
 - c. What should we anticipate as being the key barriers to progress in this area?
 - d. What changes in the design of these applications would make them more appropriate for users across a wide range of cognitive function?
- 2. Using mobile technologies as a data source. The ability to obtain high frequency and low cost measurements of cognitive functioning, health behaviors, and psychological states by active means (e.g., ecological momentary assessment) is rapidly improving. These measures can now be linked to health outcomes and other measures obtained from passive sensors and mobile devices (e.g., location, gait speed, heart rate, skin conductance), as well as others that could be collected via advances in biosensors. Finally, mobile devices provide a natural way to revisit participants in the future and obtain longitudinal data on a variety of constructs (e.g., cognition) across the broad transition period from midlife to retirement age and beyond. Progress in both mobile intervention and data collection areas is, however, unlikely to be automatic. Older adults have not “grown up” in the smart and wearable device age, and there currently remain significant issues related both to usability and acceptability overall.
 - a. How can we exploit the promise held by mobile platforms for use by older adults for intervention delivery and health monitoring while also integrating mobile platforms into research projects?
 - b. In terms of mobile devices and sensor technologies, how efficacious are they in delivering just-in-time prompts, reminders, and interventions?
 - c. Health Activity – can mobile technologies be used to measure social connectedness (or social isolation) specifically and well-being more generally?
 - d. Ethics – what are the ethical considerations (barriers?) to using mobile technologies as a data source?
 - e. Privacy and Security – what are the privacy and security issues and barriers to using mobile technologies in intervention studies and as a source of data.
 - f. Health Disparities – does the focus on mobile technology data sources run the risk of increasing health disparities (are underprivileged elderly further isolated/alienated for lack of access to targeted technologies)?

The goal of the workshop will be to not only share knowledge about successful applications but to encourage investigators to deepen the understanding of the specific conditions, people, and contexts for which such applications are more and less effective, and identify the mechanisms underlying the interventions. Such ideas could then be further developed in investigator-initiated research proposals. In particular, there is considerable merit in hearing from thought leaders about ongoing work and ideas surrounding these potential new directions.

The goal of the planning meeting is to establish the scientific scope for the workshop, identifying six priority research topics on mobile technology for older adults, and identifying potential authors to prepare papers on these topics. The authors will present the papers and discuss the development of research questions on mobile technology for older adults at the workshop on September 12-13, 2019. The papers from the workshop will be subject to standard National Academies review and be published as a workshop proceedings volume.

PLANNING MEETING AGENDA

THURSDAY, MAY 9, 2019

OPEN SESSION

10:00 am - 10:15am	Welcoming Remarks and Introductions <i>Shelia Cotten, Michigan State University, Steering Committee Chair</i>
10:15 am - 10:45am	Workshop Context and Objectives <i>Jonathan King, National Institute on Aging</i> <i>Partha Bhattacharyya, National Institute on Aging</i> <i>Dana Plude, National Institute on Aging</i>
10:45 am - 11:15am	Q&A with Sponsor Representatives
11:15 am - 12:15 pm	Identification of priority research topics for commissioned papers
12:15 pm - 1:15 pm	<i>Lunch Break</i> <i>Lunch available for purchase in the cafeteria on the third floor</i>
1:15 pm - 2:00 pm	Continued discussion of priority research topics for commissioned papers
2:00 pm - 3:00 pm	Identification of possible commissioned paper authors
3:00 pm - 3:15 pm	Break

CLOSED SESSION - Committee & Staff Only

3:30 pm - 5:00 pm	Preliminary planning of Workshop Agenda
5:00 pm- 5:15 pm	Next steps
5:15 pm	Adjourn