Aging and Health: What’s Technology Got To Do With It?

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Technology Use and Impacts Across the Life Course

Social
Health
Communication
Education
Using Technology to Improve People’s Lives
80% of older adults have been diagnosed with at least 1 chronic disease. 68% have 2 or more chronic conditions.

10 Common Chronic Conditions for Adults 65+

- Hypertension (High Blood Pressure): 58%
- High Cholesterol: 47%
- Arthritis: 31%
- Ischemic Heart Disease (or Coronary Heart Disease): 29%
- Diabetes: 27%
- Chronic Kidney Disease: 18%
- Heart Failure: 14%
- Depression: 14%
- Alzheimer’s Disease and Dementia: 11%
- Chronic Obstructive Pulmonary Disease: 11%

Source: Centers for Medicare & Medicaid Services, Chronic Conditions Prevalence State/County Table: All Fee-for-Service Beneficiaries, 2015
84% of older adults do not get the recommended amount of daily exercise.
AARP Reports:

21% of older adults do not drive

>50% of older adult non-drivers do not leave home on a given day

Reduced mobility for older adult non-drivers

15% < doctor visits

59% < shopping and restaurant trips

65% < trips for family, social, and religious activities

80% of 65 and older have at least one chronic disease

40+% have some type of disability
A Role for Technology?
HUGE Potential!

Technology use to:

• Maintain independence
• Increase social connections
• Telehealth and monitoring
• Maintain and monitor physical and mental health status
• Integrate care and communication between providers, caregivers, and care recipients
Decreased loneliness and depression

Increased communication *quantity* and *quality*

Feel more connected to family and friends

Less bothered by not seeing enough people close to them
Help overcome social and spatial barriers

Feel “updated” and less isolated from a technologically based society

“Opened up a whole new world”

“More like a part of the human race”
Thank you, I feel like I visited home today
Can Wearable Activity Trackers Help Enhance Physical Activity?
Older Adults and Chronic Disease

- Physical activity (PA) improves and can prevent chronic diseases

Minimum recommended PA level for older adults is 150 minutes of moderate-to-vigorous physical activity per week.
Wearable Activity Trackers

- Only 7% of older adults own an activity tracker
- < 6 months typical usage
How Could Using WATs Help Increase PA?

Integration of empirically tested behavioral change techniques:
• Goal setting
• Behavior awareness
• Self-monitoring
• Social support
• Social comparison
• Feedback
• Rewards
Both of these women are 80 years old. Your daily choices determine how your future will unfold.
<table>
<thead>
<tr>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop individualized goals - key for shifting external to internal motivation and promoting long-term use of WATs among older adults</td>
</tr>
<tr>
<td>• Provide tailored training documents, tracker reliability, and personalized manuals to build user trust and importance of physical activity</td>
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<tr>
<td>• Get creative with activity opportunities</td>
</tr>
<tr>
<td>• Provide evidence on importance of PA and consequences of little-no PA</td>
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</tbody>
</table>
Autonomous Vehicles’ Potential for Older Adults?
19% would be willing to use a self-driving car in the future
Perceived Benefits of Adopting Autonomous Vehicles: Michigan Residents

0 = No benefit
3 = High benefit

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Silent Generation
Baby Boomers
Generation X
Millenials

Convenient
Independent
Fewer Crashes
Improved Emergency
Reduced Traffic
Good for Environment
Less Expenses
<table>
<thead>
<tr>
<th>Concern</th>
<th>Silent Generation</th>
<th>Baby Boomers</th>
<th>Generation X</th>
<th>Millenials</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Failure</td>
<td>2.18</td>
<td>2.41</td>
<td>2.38</td>
<td>2.38</td>
</tr>
<tr>
<td>Security</td>
<td>2.09</td>
<td>2.44</td>
<td>2.38</td>
<td>2.37</td>
</tr>
<tr>
<td>On the Road with Other Vehicles</td>
<td>2.14</td>
<td>2.28</td>
<td>2.17</td>
<td>2.28</td>
</tr>
<tr>
<td>Learning to Use</td>
<td>1.93</td>
<td>1.89</td>
<td>1.38</td>
<td>1.89</td>
</tr>
<tr>
<td>Not Driving the Way I Want</td>
<td>1.51</td>
<td>1.52</td>
<td>1.37</td>
<td>1.81</td>
</tr>
<tr>
<td>Greater Expenses</td>
<td>2.13</td>
<td>2.17</td>
<td>2.09</td>
<td>1.81</td>
</tr>
</tbody>
</table>

0 = Not at all concerned  
3 = Very concerned
Benefits
• Mobility
• Independence
• Contact with social ties
• Access to resources
• Health monitoring

Needs
• Simplified interfaces
• Training and support
• Declining costs
• Connectivity/IoT
• Access and usability
• Changing attitudes

Driver assistance ➔ Full automation
Autonomous Vehicles: What’s Next?

• Aging and disabilities populations
• Health impacts
  • Stress, physical health, mental health
  • Health monitoring
  • Health care appointments
  • Engagement with social ties
• Communication and public perceptions
• Workforce impacts
• And much more!
Technology is Only a Tool!

Apps
Mobile Phones
Assistive Devices
VR
AVs
Behavioral Trackers
Smart Homes
Wearables
ICTs
IoT

Motivation
Compliance
Behavior Change
Attitude Change

Communication
Health
Quality of Life
COST
ACCESS
SKILLS
Where will the future of aging, technology, and health take us?
Thanks!

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Designing Technology Training for Older Adults in Continuing Care Retirement Communities

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