Aging, eHealth, and COVID-19

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Outline
• Self-introduction
• Electronic Health Information for Lifelong Learners (eHiLL)
• Aging during the COVID-19 pandemic
• Health Information Wants (HIW) → family caregivers of persons with Alzheimer’s disease and its related dementias (ADRD)
• Interdisciplinary collaboration

Electronic Health Information for Lifelong learners (eHiLL)
• R01AG041284; PI: Bo Xie
• eHiLL – Collaborative & Cognitive (eHiLL–C²)
  R21AG052060; PIs: Bo Xie; Julie Bugg

eHiLL: Combining Lifelong Learning and Senior-friendly Design:
Online Tutorial Overlay Presenter (OnTOP)
(R21AG052761; PI: Bo Xie; Sub-PI: Tom Yeh)

Older Adults

Health

IT

Lifelong Learning

Senior-friendly Design

Electronic Health Info. for Lifelong Learners (eHiLL)

Health Information Wants (HIW)

e-Health Literacy

Attention Split
Instruction and Application in the same interface

Online Tutorial Overlay Presenter (OnTOP)

Instruction and Application in the same interface

Online Tutorial Overlay Presenter (OnTOP)

Older adults are in triple jeopardy during COVID-19

1. Develop serious conditions;
2. Social isolation;
3. Less access to digital information or services.


Age-appropriate technology—and accompanying training and support

• High-speed Internet access as a basic human right
• The diversity of the older population
• The importance of community partnerships

Pilot Study: Older Adults’ Needs for Information, Services, and Social Interaction During COVID-19

• A first step of our larger study—to develop educational interventions to meet older adults’ needs
• Data collection took place via the phone during summer 2020
• N = 200; age range: 65-92 years; Mean: 73.6; SD: 6.33
Do you have a home computer or smart device?

- Both 5%
- Neither 9%
- Either 86%

Challenges related to technology access

- "I don't have a computer. I have a very old, old smartphone... It's not holding charge. I can't get online, because I don't have [internet] service."
- "My phone connection is lousy, so if I drop you [on the call] I didn’t intend to."
- "I have a computer but I don't have internet coming in."

Challenges related to technology literacy

- "I don't know how smart it [smartphone] is. It all depends on the person using it."
- "What is a smart phone? [explained] It’s smarter than me, at times it feels like."
- "I got this phone. Don’t know if it's a smart phone. [There's someone coming to teach her how to use it.]"

How comfortable are you using video chat services?

- Very comfortable 49%
- Somewhat comfortable 38%
- Not comfortable at all 13%
Information is power

Technology—a key gateway to information and opportunities

http://contactdb.files.wordpress.com/2012/06/yoda21.jpg

The Health Information Wants Questionnaire (HIWQ)

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Information</th>
<th>Decision-making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Treatment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lab test</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Self-care</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CAM</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Health care provider</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>


Table 1. The HIW-ADRD 3.0 framework

<table>
<thead>
<tr>
<th>Type of Information</th>
<th>Sample keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment/Medication/Prevention</td>
<td>Drug; oriental; acupuncture; vitamins</td>
</tr>
<tr>
<td>Characteristics of/Experience with the health condition/Diagnostic procedures</td>
<td>Diagnosis; complication; cause; prognosis; process; symptom; memory loss; lab test; MRI; PET; Blood</td>
</tr>
<tr>
<td>Daily care for a patient at home/Care for a caregiver (practical strategies or tips, not psychosocial)</td>
<td>Wandering; bath; hygiene; sleep; eat; driving</td>
</tr>
<tr>
<td>Care transition and coordination/End-of-life care (practical, not psychosocial)</td>
<td>Adult day care; rehab; hospital; memory care; nursing home; hospice</td>
</tr>
<tr>
<td>Psychosocial aspects</td>
<td>Stress; lonely; heartbreaking; overwhelmed; venting</td>
</tr>
<tr>
<td>Resources/Advocacy/Scientific updates/Research participation</td>
<td>Lobby; fundraising; clinical trial; news; article; scientist</td>
</tr>
<tr>
<td>Legal/Financial/Insurance</td>
<td>Power of attorney; POA; living will; Medicare; Medicaid</td>
</tr>
</tbody>
</table>

Fig. 1. The Expert-Machine Co-development (EMC) Process

Interdisciplinary collaboration is key!

... BUT be patient and be prepared for the initial "cultural shock"!

Interdisciplinary thinking and collaboration: my own experience

**Health Sciences**
- "Patient education"
- Community-based participatory research (CBPR)
- Specific "diseases" or "health conditions"

**Information Science**
- "Information behavior"
- Participatory design
- Informatics tools can be used with most if not all diseases or health conditions

Developing technology-based interventions for ADRD caregivers—where are we?

- Using AI to assist in ADL, targeting a limited number of specific activities
- Exploratory—qualitative, small sample, atheoretical
- Lacking empirical data from human subjects (technical specifics or system architecture for designing AI systems)
- Missing key pieces of information for PRISMA extraction, e.g., demographics, research settings, sites
- Mixed results
- Little overlap between the health sciences and CS/engineering databases
- Research is still in the stage of tech development, far from ripe for clinical evaluation—more opportunities for interdisciplinary collaboration!

CDC: Precision health: Improving health for each of us and all of us

- "Your genes, behaviors (such as exercise and eating habits), and environment are all factors that affect your health. The goal of precision health is to protect your health by measuring these factors and acting on them. Interventions can be tailored to you, rather than using the same approach for everyone. Precision health approaches can better predict, prevent, treat, and manage disease for you and your family."

[https://www.cdc.gov/genomics/about/precision_med.htm](https://www.cdc.gov/genomics/about/precision_med.htm)

Will the generational digital divide disappear on its own?

Thank you! Questions?

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