Privacy in Aged Care Monitoring Devices (ACMD): The Developers’ Perspective

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“Aging in place” older adults remaining in their home as they age

More people are preferring to “Age in place”

More than 70% of people in Western nations, aged 65 and over prefer to age in place (AARP, 2011; AGPC, 2015)

To maintain independence and attachment with their community

Aging may increase frailty and cognitive impairments, which can make it difficult to live independently without support
Aged Care Monitoring Devices

- Technology developers are responding to the increasing demand in older adults’ preference of aging in place by developing ACMD
- To ensure that they stay connected, secure and protected while living independently
- Examples of Aged Care Monitoring Devices:
  1. Home sensors such as fall detectors
  2. Wearables such as bracelets
  3. Portable such as smart walking sticks
Why is Privacy Important in ACMD?

• Privacy is linked to dignity

• Collect data from the older adults, from their own homes and surrounding environments, providing a window into the user’s private life

• Exposing sensitive details of older adult’s health or personal activities to unintended people/time might enhance the risks of dignitary harms

Privacy questions:
  o Who has access to my data?
  o What type of data can they access?
  o When?
Privacy in ACMD
Research Aims

- Technology developers are responsible for the design and development of ACMD and incorporating privacy protections.
- Limited understanding of how developers perceive privacy and interpret it.
- Fill this knowledge gap by conducting in-depth interviews with developers.
- How they understand privacy and what privacy problems they believe need to be addressed in the development of ACMD.
- Extend the findings of our previous literature review.
Methodology

- In-depth semi-structured interviews with ten developers from eight companies
- Purposeful sampling approach

To recruit participants:

1. Internet search for ACMD companies
2. Snowball method
3. Conferences related to the aged care industry

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<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
<th>Position</th>
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<tbody>
<tr>
<td>P1</td>
<td>Male</td>
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<td>P2</td>
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<td>P4</td>
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<td>P5</td>
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<td>P6</td>
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<td>P7</td>
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<td>P9</td>
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<tr>
<td>P10</td>
<td>Male</td>
<td>CEO, Co-founder</td>
<td>Medium</td>
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**Methodology**

- **Date Collection:** semi-structured interviews, open-ended questions
- How they define privacy and what privacy problem(s) they were aware of that require solutions in ACMD
- **Data Analysis:** “interpretive approach” to gain insights about a phenomenon by interpreting the meanings people assign to it
- Understand what privacy means to participants and how their views are reflected in practice
Interpretations

1. Various Notions of Privacy
   - Define privacy by narrowing it into one or more of what they believe poses privacy problem(s)
   - Unauthorised access to data, data insecurity, lack of confidentiality, secrecy and secondary usage of data

Example:

“[privacy] is to protect data from being accessed by unauthorised people or third parties.” (P4)

- One participant said that privacy has no definition

Example:

“It is difficult to define privacy these days! It’s more about what will you get in return for losing your privacy.” (P10)
2. Threats on Privacy

2.1. Data Accessibility: uncontrolled data accessibility

Example: “the weakest point is who has access to data and can export files and so.” (P2)

2.2. Security Issues: data exposure to security threats during collection, transfer and storing

Example: “transferring data is the weakest point in terms of privacy as it can be hacked.” (P3)

2.3. Human Error: employees’ errors and behaviors when dealing with data

Example: “Human error is the main threat to privacy especially who has access to data stored on cloud.” (P5)
1. Participants struggled or showed discomfort when asked about privacy

2. Uncontrolled/unauthorized access to users’ data is the major threat on older adults’ privacy with security concerns coming after it.

3. Introducing “human errors” as a serious problem to users’ privacy in ACMD
• ACMD companies need to tackle privacy in a sociotechnical approach by considering the human factors in addition to providing technical solutions to privacy problems
✓ Users: Collect requirements and feedback
✓ Employees: effective training, create and comply with strict privacy policies
✓ Technical: Create solutions to technical problems such as insecurity and identification.
• Adopt an expanded view of privacy. Claiming that older adults’ privacy is protected by providing solutions to secure users’ data or human errors means that there will remain other privacy loopholes.
Thank You

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