CUIs for Chronic Health Care

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Introduction
Voice-based conversational user interfaces (CUIs) can help households with accessing health information [9, 14] and maintaining health [6]. However, issues with the reliability of health information [3, 14] and functionality of the devices [6, 15, 19] can prevent CUIs from being adequate for care. Emerging work from Brewer [4] also suggests that older adults prefer to interact with their health data in more subjective ways focusing on more positive attributes. While our understanding of the older adult perception of using CUIs for health and wellbeing is growing [4, 9, 14, 17], the perception of other populations living with chronic illnesses is needed.

We are currently examining using Alexa as a pendant alternative to access Careline, an emergency care service provider for older, frail, or disabled people. We aim to contribute to CUI research on off-the-shelf commercial products like Alexa by understanding its potential as a technology for supporting community health services for those living with chronic conditions. Continued understanding of how we can adapt commercial technologies will allow for bespoke solutions that can be adopted and appropriated by households and support their informed decisions as well as their

learning and maintenance of these devices to support their idiosyncratic needs [13].

CUIs and Health

The exploration into mobile health (mHealth) applications has been done by a diverse range of disciplines, including Human-Computer Interactions [7, 18]. However, since the implementation of these technologies assumes use in line with traditional care practice and delivery, it does not account for the nuances of informal care management [2, 10, 16]. Since traditional care follows a hierarchical structure, technology designed on this basis also does not account for the power imbalances that can be developed [11]. Moreover, as other researchers have found, often assistive technology, like those for aging in place, are stigmatized such that people refuse to adopt them even if they could benefit from them [5].

Recognizing this limitation, HCI researchers have examined how off-the-shelf technologies and systems can be used for care [7, 8, 12, 17]. While these devices were not always designed to help with care, accessibility of these systems, such as calendars for coordinating care [8], and voice assistants [17] allows them to take on this role. These design limitations then can result in users' perceptions of how the device can assist them to differ from reality [15].

Our Related Work

For our work (*"Independence for Whom? Critical Discourse Analysis of the Onboarding of a Home Health Monitoring System for Older Adult Care"*), we explored how the marketing and onboarding of a home health monitoring system, which included a simple CUI device, affected care dynamics in households. We found that the textual information often contrasted with how our participants managed their care. Instead of providing participants with 'independence,' 'safety,' and 'peace of mind,' care recipients were placed in a more dependent, less proactive role, and care providers were pressured to take on more responsibilities. This research allowed us to look at home monitoring and automation for at-home health critically.

Future Work

We plan to apply a similar critique to examine how commercial CUIs are being used for home health care. A study of Alexa Echo Show as a tool for accessing the UK's NHS revealed that users with diabetes gained additional support in managing their diabetes by using the CUI [1]. While this research involved care recipients and carers, they focused on independence, which other researchers have found only sometimes accounts for the nuances of collaborative care [2, 10, 16]. Our research will contribute to understanding how CUIs are used for care collaboration for those living with chronic conditions. Thus far, we have conducted interviews with ten households (thirteen participants; in seven households, only one resident was interviewed) and have begun coding this data in Nvivo. All thirteen participants were recruited for the interview study, which consisted of three stages (Pre-Installation, Post-Installation, and Three Months Post-Installation of an Alexa Echo Show).

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