

Enhancing Health Data Representation for Older Adults : Unlocking Opportunities

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1 Background

The increasing popularity of wearable technologies encourages the promotion of healthy behaviours [1,2]. They monitor critical physiological data like blood pressure, sleep, and heart rate. The health data from these consumers' off-the-shelf wearables is often conveyed through visual data representations like graphs or texts [1].

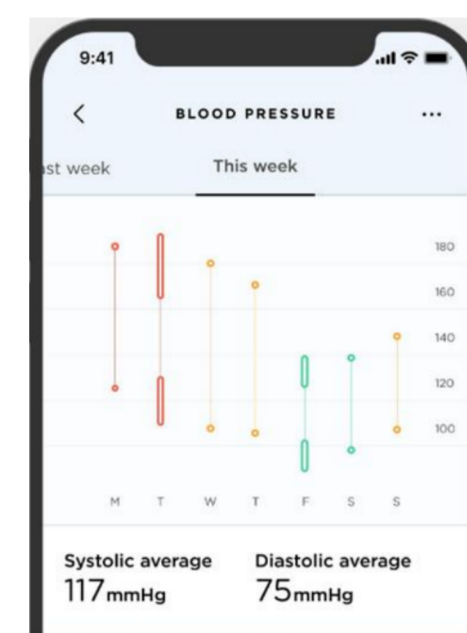
It is not always accessible to people with disabilities or older people due to low vision, cognitive impairments or literacy issues.

Trade-offs between aesthetics predominance and Information overload may hinder such critical data understanding for older adults, hence extending the digital divide [2,3].



2 We need to explore the extended digital divide

- Older adults may find navigating this maze of health devices complex and intimidating as the feedback is not easily conveyed through visual cues from the device's sensors.
- Need to identify the problems misleading them in existing health data representations[2] and visualisation limitations [4]
- Understanding the existing data representations is necessary to find limitations and uncover potential design opportunities in their engagements.



e.g. Health Data representation for Blood Pressure

3 Methodology

To evaluate current data representations in healthcare and develop inclusive design prototypes, a comprehensive methodology will be employed. This includes a heuristic evaluation of existing health data representation by experts and mixed methods accessibility studies with older adults. Based on initial evaluations, new prototypes will be created using an iterative phased-based approach. Observation and interview sessions will involve participants aged 60 years or older recruited from partnered organizations. Objective measures such as task completion rates and usability measures will be collected, along with qualitative data through open-ended questions during task-based observations. Thematic analysis will be used to identify emerging themes.

4 Outcomes

- Collection of evidence of accessibility issues emerging from analysis themes:
 - What worked?
 - What didn't?
- Determine optimal presentation of critical parameters and context based on user perceptual attributes, utilising different modalities (sound, tactile, etc.) to adapt to user conditions and environment. It is envisioned that this approach will enhance accessibility by allowing users to switch between modalities according to preferences.
- Use findings to iteratively inform the design of a multimodal prototype with visual, auditory, and tactile feedback evaluated by older adults.
- Create an inclusive, personalised and novel health data representation using multimodality, tailored to sensory abilities and preferences, empowering older individuals to actively engage in their health and make informed decisions, leading to improved health conditions and support for older populations.



References

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