

Interview Study on the Effects of a Robotic Showerhead and its Ability to Improve Accessibility in the Showering Environment

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INTRODUCTION

As older adults began to age, many mobility challenges may arise, limiting them in completing activities of daily living. Older adults with long term mobility impairments experience significant challenges in the bathing environment due to reduced mobility, balance, environment barriers. Standard shower designs fail to support independence and safety leading to increased reliance on caregivers and reduced quality of life. This interview study explored user experiences and explores an assistive showerhead technology designed to improve accessibility, independence, and safety.

AIM

This interview study aimed in understanding the lives experiences, challenges and preferences of older adults with mobility impairments and their caregivers in regarding showering habits and the use of assistive devices and technologies in the bathing environment.



METHOD

A qualitative interviews study was conducted on older adults and caregivers. The participants included 12 individual's total. 6 older adults ages 60+ years with mobility impairments >10 years using a wheelchair/scoot >40 hours/week and are required to be in a seated position while showering. 6 caregivers who were family or professional caregivers with >1 year of experience supporting wheelchair users.

Recruitment was done through flyers, emails, and website listings. The screening information included contact information collection as well as a telephone interview testing cognitive status.

After providing informed consent, participants took part in a structured interview-based evaluation on multiple assistive showerhead modes including user guided, voice controlled, and gesture controlled, as well as a dual showerhead configuration. After each design on showerhead was shown, participants were asked to provide feedback on usability and perceived effectiveness as well as any preference or requests. The session concluded with final feedback, compensation to the individual as well as closing remarks.

RESULTS

- Showering Challenges and Barriers-Participants described functional and physical barriers including reduced mobility, balance and unsafe showering environments.
- Adaptation and Personalization – Users frequently adapted their environment using assistive devices and home modifications
- Independence and Autonomy – A strong need for independence was reported with participants that valued having increased autonomy and reduced caregiver burden
- User friendliness – Findings highlighted ease of movement, ability to stay in place and learning curves
- Privacy and practical concerns – Concerns regarding privacy with cameras and sensors as well and cleaning and maintenance concerns with installation and spillage
- Design Preference – Participants emphasized personal design preferences and highlighted importance of adaptability

CONCLUSIONS

This study highlights key barriers and user needs in showering for older adults with mobility impairments.

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