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Caregivers' Acceptance and Perspectives on an Augmented Reality–Based Pressure Ulcer Assessment Device: A Qualitative Study Based on the Technology Acceptance Model

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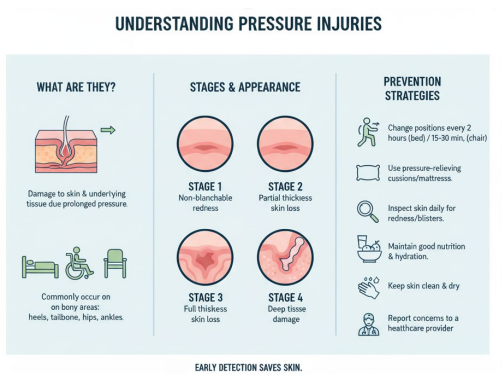
Introduction

- **Prevalence and Burden of Pressure Injuries:** Pressure injuries are a significant global health problem, affecting millions of people annually. They lead to substantial healthcare costs and are particularly common in vulnerable populations, often resulting in severe complications and decreased quality of life.
- **Challenges in Current Management:** A major challenge in managing pressure injuries, particularly in long-term care and home settings, is the lack of timely access to specialized wound care.
- **Potential of Augmented Reality (AR):** The study explores the potential of augmented reality as a solution to these management challenges.



Objectives

This study aimed to understand caregivers' willingness to adopt and use AR-assisted wound assessment technology and obtain suggestions on improving technology based on benefits and drawbacks identified.

Methods

- **Sample and recruitment:** Data were collected through personal in-depth interviews with caregivers. Recruitment was conducted through posters and e-recruitment materials distributed in hospitals, clinics, and departmental areas, as well as through social media platforms such as Rednote and WeChat.
- **Data collection:** Data was collected through semi-structured individual interviews. Semi-structured interviews allowed for in-depth exploration of the emerging theme.
- **Statistical Analysis:** Data analysis was conducted using a theory-driven thematic analysis approach, guided by the Technology Acceptance Model 2 (TAM2). The analytical process systematically follow the six phases outlined by Braun and Clarke. NVivo qualitative data analysis software was utilized to manage and facilitate the coding and thematic organization of the data.

Conclusion

- This study explored the perspectives of healthcare professionals and caregivers on an AR application for remote pressure injury assessment.
- The findings indicated strong perceived usefulness and high intent to use, highlighting the AR tool's potential to enhance assessment accuracy and communication in remote care.
- Additionally, considerations like user interface design, navigation, cost and data privacy were consistently raised by participants.
- These insights underscore that while AR can help to improve remote pressure injury management, prioritizing intuitive usability and addressing privacy concerns is critical for successful adoption. Future research should quantitatively assess the effectiveness of AR applications on patient outcomes and healthcare efficiency.

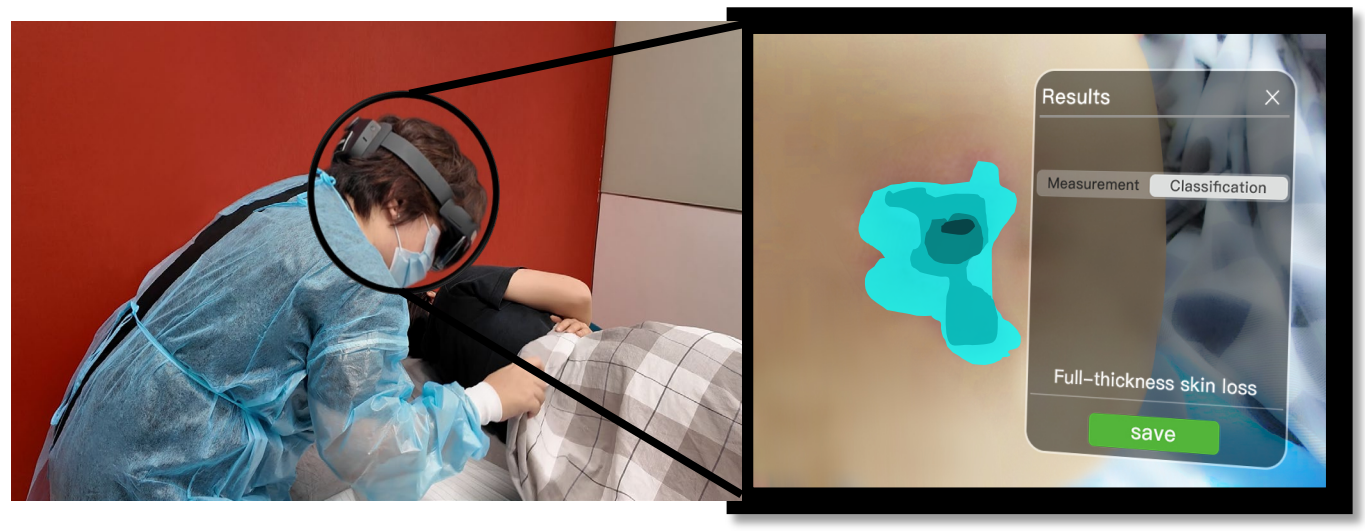


Fig 1. Using AR-based tool to do pressure injuries assessment.

Results

Four main themes emerged:

- Perceived Usefulness, Perceived Ease of Use, and Intent to Use.
- Under Perceived Usefulness, participants emphasized four subthemes: accuracy and reliability, reduced communication barriers between clinicians and caregivers, enhanced tracking and monitoring of patients' conditions, and quick response.
- The theme Perceived Ease of Use included subthemes such as appointment scheduling, user interface design, navigation, and quick tutorials.
- For Intent to Use, key factors included time and cost, data privacy concerns, and previous experiences with similar devices.
- Additionally, two external variables emerged: computer self-efficacy and computer anxiety.

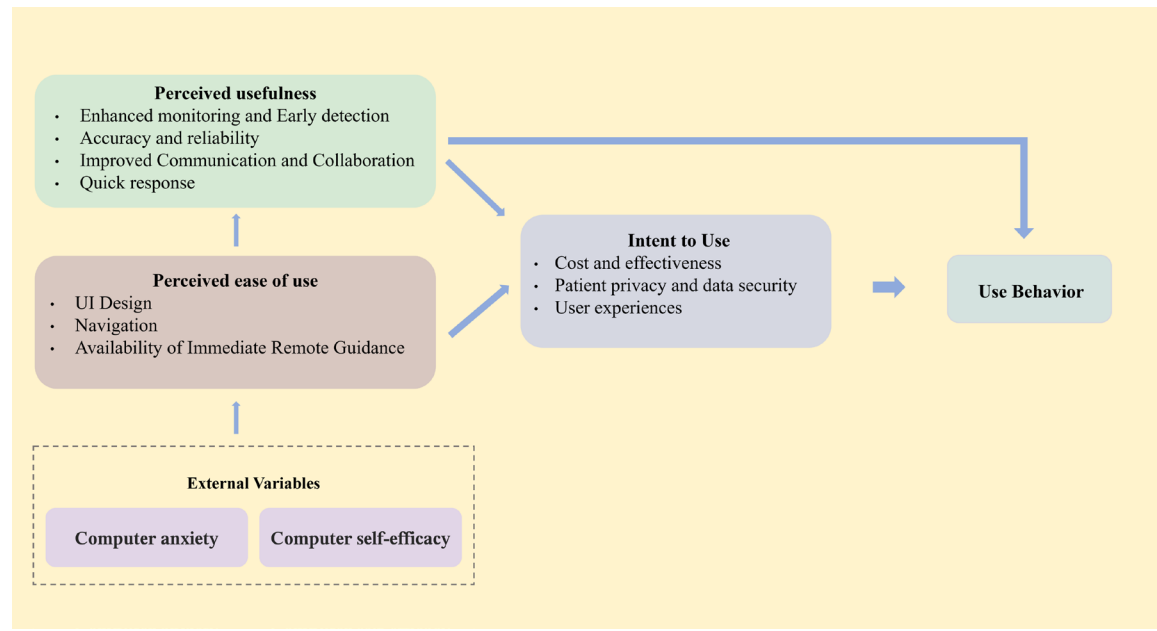


Fig. 2 Thematic framework of perspectives on AR in remote pressure injury management.

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