Long-term Care Home Residents Experiences with Socially Assistive Technologies and their Effectiveness: A Mixed-Methods Systematic Review:

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Disclosures

☑️ I have no financial relationship with a commercial entity producing healthcare-related products or services.
Intended Learning Outcomes

At the conclusion of this educational activity, participants will be able to:

- Understand the experiences of residents of LTC homes with socially assistive technologies.
- Understand the effectiveness of these technologies on improving loneliness, and depression.
Team

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Background

• The global number of older adults (≥ 65 years)¹ and the demand for long term care (LTC) services are expected to increase over the next 30 years.

• LTC residents experience loneliness and depression which can escalate cognitive decline²,³.

Background

• The COVID-19 pandemic catalyzed the use of technology (e.g. videoconferencing) and tablet use to support social interaction\(^1\).

• Little is known about residents' experiences with these technologies and the effectiveness of such technologies.

Objective

• To explore the experiences of LTC home residents use of socially assistive technologies and the effectiveness of these technologies in relation to depression, and loneliness.
Review Questions

1. What are the experiences of residents of LTC homes with socially assistive technologies?

2. What is the effectiveness of these technologies on improving loneliness, and depression?
Methods

• A JBI mixed methods systematic review was completed – convergent, segregated approach.

• CINAHL, Medline, Embase, PsycINFO and Scopus databases searched for published and unpublished studies.

• A grey literature search was completed.
Methods

• Quantitative and qualitative data findings analyzed separately, then integrated.
• Where possible, quantitative data synthesized with comparative meta-analyses using fixed effects model.
Results: Description of Included Studies

- 7,817 titles and abstracts reviewed
- 137 full text articles retained
- 14 included studies
- Published between 1995-2021
Results: Description of Included Studies & Countries

• 7 quasi-experimental studies, 1 cross-sectional, and 6 qualitative – sample sizes n=21-90

• Outcomes addressed depression and loneliness
Results: Description of Technologies

• Videoconferencing (n=11)
  • Friends or family
  • Local students
  • Other LTC residents
  • Presentations + discussions with local experts

• Non-videoconferencing (n=3)
  • Group physical activity (technology enabled)
  • Personalized digital storybooks
  • Online community engagement
Results: Meta-analysis

Geriatric Depression Scale (GDS)
  • Meta-analysis, 4 studies compared intervention group to control, results inconclusive

UCLA Loneliness
  • Meta-analysis, 4 studies compared intervention group to control, results inconclusive
Results: Qualitative

• 19 themes categorized by similarity in meaning
• 2 categories
  • Enhanced sense of wellbeing
  • Mismatch between technology and resident wellbeing
Results: Qualitative

**Category 1: Enhanced Sense of Well-being:**
- Residents used descriptors of their experience such as happy, wonderful, fabulous
- Fulfilling interpersonal relationships
- Positive way to engage with family and friends
- Feeling immersed in the lives of their families

**Illustration**
“It (videoconferencing) is a fun and helpful activity. Although it just took me a little time to interact with my family, I feel fabulous every time after talking with my son. Sometimes he (the son) plays a song that I like on the violin, which he would never bring here (nursing home).”
Results: Qualitative

**Category 2:** Mismatch between Technology and Resident/User Ability:

- Residents reported needing help to be able to use the technology
- Steps to make a video call complicated plus memory and dexterity challenges
- Videoconferencing software glitchy and dropped calls

**Illustration**

“I didn’t know how to use it (the videoconferencing equipment). Every time someone needed to help me use it. Sometimes I think using the phone might be quicker and easier to control. Especially, when I first used the setup, it felt very strange to talk with a computer even when my son was on other side.”
Results: Synthesized Finding

Matching technology functionality to user for enhanced well-being

- Residents liked the technology
- Unable to use at their convenience
- Matching user ability to technology seems apparent
Results: Data Integration

- Quantitative results & qualitative findings were complementary.
- Participant challenges using technology identified in the qualitative synthesis may help explain why there were not significant results from the quantitative results.
Recommendations and Implications
Practice & Policy Recommendations

• Technology developers should consider age-appropriate functionalities of technologies to optimize use with minimal instruction/support.

• Potential to have recreational therapists support residents with technology interactions as part of scope of practice.
Practice & Policy Recommendations

• Use of voice-activated technology and devices which may help older adults overcome barriers.
  • Research into usability, feasibility, and effectiveness.
  • May make technologies more accessible and further support residents’ health and social outcomes.
Limitations

• Small number of studies included.
• Small sample sizes within included studies.
• Potential to have missed key terms to include in search.
Conclusions

• The reduction of loneliness and depression with use of socially assistive technologies is inconclusive.

• Residents need assistance to use socially assistive technologies.

• Technology developers should consider incorporating functionalities related to usability that make socially assistive technologies accessible no matter the end-user.
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Questions & Comments