

Exploring Older Adults' Perceptions of Assistive Technology

As a result of this presentation, learners will be able to:

- 1. Describe barriers to use of AT by older adults and ways to overcome them
- 2. Summarize perceived areas of concern older adults may have related to AT
- 3. Address older adults' areas of concern related to AT
- 4. Use supports of AT adoption and use to promote effective practice

Barriers to Use

- Lack of affordability (1,5,8,10,11,12,14,16,20)
- Difficulty with phrasing of terminology (2,8)
 - E.g. "Hey Siri" "Alexa What's the weather like today?"
- Lack of knowledge about device and features (2,7,12,13,15)
- Lack of confidence in use (3,13,16,19)
- Lack of training (5,13)
- Waiting until "the right time" (11,12)
 - Remember AT can enhance the lives of anyone!
- Lack of congruence across platforms (13,15)

Addressing Barriers to Use

- Many barriers can be prevented or avoided
- Choose devices within budget and consider alternate funding as available
- Create guides to promote learning of concepts
- Ensure device users have access to training
 - o Aim to promote feelings of confidence and knowledgeability
- Educate individuals about ways AT can help people of any age
- Use devices that "talk" to each other

Primary Concerns

- Invasion of privacy/"Always listening" (1,2,5,7,8,9,10,12,14,15,17,18,19)
- Sharing information with family without consent (11,19)
- External use of data (9,10, 11,12,15)
 - Desire to know who can access recorded information
- Desire to have a say in device design (9,15)
- Rapidly changing tech (7,13,16)
 - O When will they need a new one? Can they keep up?
- Reliability (8,10,14)
 - Ability to consistently use device(s)
- Access to data recorded by devices (8,15)

Addressing Concerns in Practice

- Create an open discussion regarding concerns
- Prioritize privacy
- Person-centered care
 - O Devices may work well, but do they work well for THIS person?

Case Study – Addressing Concerns in Practice (Fictional Case)

Bill is a 72-year-old male who lives in an urban MN apartment. He was recently in a severe MVA that resulted in a BKA of his right leg. Bill confidently uses a slide board for transfers to and from his manual wheelchair and uses crutches to go short distances within his apartment. Bill received a PT consult to address accessibility of his apartment. She recommended that he use a bath bench, hand-held shower head, Ring doorbell, and smart hub (providing voice control of lights and an automated door opener). Bill is ready to order the tub bench, shower head, and Ring. He sees the potential benefit of using a smart hub but wants more information about how to use it and how his data is used before he is sold.

- What can the PT do to support Bill in informed decision making?
- What other options may better suit Bill should he decide not to get a hub?

Supports to Use – Is it Something I can Use?

- Ease of use (2,7,8,10,11,14)
- Usable by or considers multiple people (caregiver and individual) if applicable (14,19)
- Confidence in use (4,10)

Supports to Use – Lifestyle Fit

- Value (4,5)
- Person-centeredness (4,9,10,14,16,19)
- Congruence with daily life (10,11,14)
- Inclusion of social considerations (10, 11,13,14,16)
- Aesthetically pleasing (10, 11)

Supports to Use – Is it Helpful to Me?

- Usefulness/usability (2,4,5,7,14,15,17,19)
- Personal functional concerns lead to increased openness (6,12)
- Perception of need/benefit (7,8,10,17)
- Potential to increase independence/autonomy (4,9,10,11,12,14,18,19)
- Enhanced feelings of safety (13,14)

Supports to Use - Do I Have What I Need to be Successful?

- Perceived support and resources (2,4,16,20)
- Social support/lack of stigma (1,4,5,10,12,16)
- Past tech experience (esp. high tech like smartphone or tablet) (4,6,10,12,20)

Key Takeaways

- While there are several notable barriers to older adults' adoption of AT, many of these can be combated by evidenced-based approaches
- Older adults' concerns about AT should be addressed early and often
- Known supports of AT use by older adults can be used by practitioners to enhance adoption and reduce likelihood of device abandonment

References

- Harris, M. T., Blocker, K. A., & Rogers, W. A. (2021). Smartphone and digital home assistant use among older adults: Understanding adoption and learning preferences. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 65(1), 742–746. https://doi.org/10.1177/1071181321651316
- 2. Koon, L. M., McGlynn, S. A., Blocker, K. A., & Rogers, W. A. (2020). Perceptions of digital assistants from early adopters aged 55. Ergonomics in Design, 28(1), 16–23. https://doi.org/10.1177/1064804619842501
- 3. Lui, P., Li, G., Jiang, S., Liu, Y., Leng, M., Zhao, J., Wang, S., Meng, X., Shang, B., Chen, L., & Huang, S. H. (2019). The effect of smart homes on older adults with chronic conditions: A systematic review and meta-analysis. Geriatric Nursing (New York), 40(5), 522–530. https://doi.org/10.1016/j.gerinurse.2019.03.016
- 4. Chaiwoo, L. & Coughlin, J. F. (2015). Perspective: Older adults' adoption of technology: An integrated approach to identifying determinants and barriers. The Journal of Product Innovation Management, 32(5), 747–759. https://doi.org/10.1111/jpim.12176
- 5. Yusif, S., Soar, J., & Hafeez-Baig, A. (2016). Older people, assistive technologies, and the barriers to adoption: A systematic review. International Journal of Medical Informatics (Shannon, Ireland), 94, 112–116. https://doi.org/10.1016/j.ijmedinf.2016.07.004
- 6. Arthanat, S., Wilcox, J., & Macuch, M. (2019). Profiles and predictors of smart home technology adoption by older adults. OTJR: Occupation, Participation and Health., 39(4). https://doi.org/10.1177/1539449218813906
- 7. Tural, L., D., & Cole, A. D. (2021). Safely and actively aging in place: Older adults' attitudes and intentions toward smart home technologies. Gerontology and Geriatric Medicine, 7, 233372142110173–23337214211017340. https://doi.org/10.1177/23337214211017340
- 8. Choi, Y. K., Thompson, H. J., & Demiris, G. (2021). Internet-of-Things smart home technology to support aging-in-place: Older adults' perceptions and attitudes. Journal of Gerontological Nursing, 47(4), 15–21. https://doi.org/10.3928/00989134-20210310-03
- 9. Chadborn, N. H., Blair, K., Creswick, H., Hughes, N., Dowthwaite, L., Adenekan, O., & Pérez Vallejos, E. (2019). Citizens' juries: When older adults deliberate on the benefits and risks of smart health and smart homes. Healthcare (Basel), 7(2), 54. https://doi.org/10.3390/healthcare7020054
- 10. Pirzada, P., Wilde, A., Doherty, G. H., & Harris-Birtill, D. (2022). Ethics and acceptance of smart homes for older adults. Informatics for Health & Social Care, 47(1), 10–37. https://doi.org/10.1080/17538157.2021.1923500
- 11. Ghorayeb, A., Comber, R., & Gooberman-Hill, R. (2021). Older adults' perspectives of smart home technology: Are we developing the technology that older people want? International Journal of Human-Computer Studies, 147. https://doi.org/10.1016/j.ijhcs.2020.102571
- 12. Dermody, G., Fritz, R., Glass, C., Dunham, M., & Whitehead, L. (2021). Factors influencing community-dwelling older adults' readiness to adopt smart home technology: A qualitative exploratory study. Journal of Advanced Nursing, 77(12), 4847–4861. https://doi.org/10.1111/jan.14996

- 13. Marston, H. R., Genoe, R., Freeman, S., Kulczycki, C., & Musselwhite, C. (2019). Older adults' perceptions of ICT: Main findings from the Technology In Later Life (TILL) study. Healthcare, 7(3):86. https://doi.org/10.3390/healthcare7030086
- 14. van Boekel, L. C., Wouters, E. J. M., Grimberg, B. M., van der Meer, N. J. M., & Luijkx, K. G. (2019). Perspectives of stakeholders on technology use in the care of community-living older adults with dementia: A systematic literature review. Healthcare, 7(2):73. https://doi.org/10.3390/healthcare7020073
- 15. Wang, S., Bolling, K., Mao, W., Reichstadt, J., Jeste, D., Kim, H.-C., & Nebeker, C. (2019). Technology to support aging in place: Older adults' perspectives. Healthcare, 7(2):60. https://doi.org/10.3390/healthcare7020060
- 16. Evans, S., Waller, S., Bray, J., & Atkinson, T. (2019). Making homes more dementia-friendly through the use of aids and adaptations. Healthcare, 7(1), 43. https://doi.org/10.3390/healthcare7010043
- 17. Liu, L., Stroulia, E., Nikolaidis, I., Miguel-Cruz, A., & Rios Rincon, A. (2016). Smart homes and home health monitoring technologies for older adults: A systematic review. International Journal of Medical Informatics (Shannon, Ireland), 91, 44–59. https://doi.org/10.1016/j.ijmedinf.2016.04.007
- 18. Berridge, C. & Wetle, T. F. (2020). Why older adults and their children disagree about inhome surveillance technology, sensors, and tracking. The Gerontologist, 60(5), 926–934. https://doi.org/10.1093/geront/gnz068
- 19. Gagnon-Roy, M., Bourget, A., Stocco, S., Lemieux Courchesne, A.-C., Kuhne, N., & Véronique Provencher, V. (2017) Assistive technology addressing safety issues in dementia: A scoping review. American Journal of Occupational Therapy, 71(5), 7105190020p1–7105190020p10. https://doi.org/10.5014/ajot.2017.025817
- 20. Golant, S. M. (2017). A theoretical model to explain the smart technology adoption behaviors of elder consumers (Elderadopt). Journal of Aging Studies, 42, 56–73. https://doi.org/10.1016/j.jaging.2017.07.003