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Ethical considerations in AgeTech: Towards inclusive and equitable solutions

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Purpose In the realm of technology-driven solutions for older adults, known as AgeTech, there exists a promising landscape where advancements can significantly enhance the health, autonomy, and overall quality of life for elderly individuals (Sixsmith, 2021). These innovations not only enable aging individuals to remain independent within their familiar environments but also revolutionize the delivery of essential services. However, within this realm of potential, lies a pressing need to address ethical challenges such as the protection of the fundamental rights, privacy, and well-being of older individuals, particularly in an era marked by rapid technological advancement (Rubeis et al., 2022; Ryan and Gutman, 2023). **Method** This study embarked on a comprehensive exploration of these ethical quandaries through a series of six 2-hour workshops (n=3 in Canada; n=3 in Scotland). These workshops convened Canadian and European stakeholders, including academics, healthcare and social work professionals, engineers, and representatives from the older adult community. Through thematic analysis employing a reflexive team approach, each workshop's data were treated as separate datasets, then amalgamated to identify key themes, with discussions delving into the ethical dimensions inherent in AgeTech research and development. **Results and Discussion** The workshops highlighted key ethical concerns, including the unexpected ways older people are left behind in AgeTech research and development. They also addressed opportunities to shift ethical thinking around personal agency, protection, and privacy. Additionally, the workshops discussed the intended and unintended consequences of implementing technologies, including their potential to replace elements of interaction or contribute to the worsening of existing power imbalances. Our analysis highlighted the need to integrate perspectives of older people, particularly those from marginalized groups such as those from the LGBTQ+ community, racialized minorities, and economically disadvantaged communities, into the fabric of AgeTech processes. Furthermore, participants advocated for the establishment of inclusive co-creation workshops as a means to nurture ethical awareness and action. Additionally, the analysis emphasized the significance of fostering cultural shifts within the AgeTech landscape, steering it towards a more equitable and ethically-sound trajectory. In essence, this research underscores the indispensable nature of addressing ethical considerations in AgeTech. Doing so not only promises positive outcomes for older adults yet also holds the potential to bridge the digital divide and forestall any unintended negative consequences that may arise in the AgeTech arena.

References

- Sixsmith, A. (2021). AgeTech: Technology-based solutions for aging societies. *Promoting the health of older adults: The Canadian experience*, 135.
- Rubeis, G., Fang, M. L., & Sixsmith, A. (2022, October 27). Equity in AgeTech for Ageing Well in Technology-Driven Places: The Role of Social Determinants in Designing AI-based Assistive Technologies. *Science and Engineering Ethics*, 28(6), 49. <https://doi.org/10.1007/s11948-022-00397-y>. Erratum in: *Science and Engineering Ethics*, 28(6), 67. PMID: 36301408; PMID: PMC9613787.
- Ryan, Y., & Gutman, G. (2023). Aging, artificial intelligence, and the built environment in smart cities: Ethical considerations. *Gerontechnology*, 22(2), 1-5. <https://doi.org/10.4017/gt.2023.22.2.rya.08>

Keywords: ethics, ethical design, AgeTech, technology

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Acknowledgement: This research was supported by AGE-WELL Canada.

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Figure 1. Overview of available digital therapy systems