

# ORAL PAPER PRESENTATION 3: PHYSICAL AND MENTAL HEALTH

## Older peoples' attitudes toward technology (TechPH), digital ageism and assistive technology devices

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**Purpose** Europe has called attention to the importance of e-inclusion of older adults (McLean, 2011). Society indicates that the developers, websites and devices are causing age bias in technology. This affects living independently, the values of ethical principles associated with an older person, and digital ageism: which is age-related bias in artificial intelligence systems (AI) (Chu et al., 2022). AI is promising in healthcare. Robots are becoming an emotional friend to the older adult, especially in people with mild dementia (Abdollahi et al., 2022); however, when ageist attitudes are underlying the technology, the effects of the advancement need to be reconsidered. If older adults are not able to follow because of a negative view of the process of aging, it becomes a problem for sustainable and successful aging (Lythreathis et al., 2022). Older adults use internet services and assistive technology devices differently depending on their regions. Compared to Italy, Swedish older adults display a positive attitude toward information communication technology ICT devices (Zambianchi et al., 2019). A Dutch study indicated in 2019 that there was a significant difference in older adults who started using the Internet (11.6%) compared to those who stopped (3.1%) (Berner et al., 2019). This research investigates the association between digital ageism (measured by digital social participation (DSP), age, cognitive function, gender, health), technology anxiety and enthusiasm, and assistive technology devices during 2019- 2021. The assistive technology device we will investigate in this study is the adoption of a service designed for online health consultations. **Method** The participants are part of the longitudinal Swedish National Study on Aging and Care (SNAC). More details on this study can be found elsewhere (Lagergren et al., 2004). Technology anxiety and technology enthusiasm are two factors that comprise the instrument techPH, which aims at measuring technophilia (vs technophobia) in older adults (Anderberg et al., 2021). This instrument was developed and validated and is currently used in (SNAC) to investigate and evaluate older people's attitudes toward and usage of the technology. The age range is 63 -99 in 2019 T1 and 66 -101 in 2021 T2. Wilcoxon rank test was conducted to investigate technology enthusiasm, anxiety, and how they changed over time. An Edwards Nunnally index was then calculated for both variables to observe a significant change in score from T1 to T2. Mann Whitney U test was used to investigate the variables sex and health status with technology anxiety & technology enthusiasm in T1 & T2. Age, Cognitive function MMSE, digital social participation were investigated through a Kruskal-Wallis test. Logistic regression was conducted with the significant variables. **Results and Discussion** Between 2019-2021, change in technology enthusiasm was based on less DSP (OR: 0.608; CI 95%: 0.476- 0.792). Technology anxiety was significantly higher due to age (OR: 1.086, CI 95%: 1.035-1.139) and less DSP (OR: 0.684; CI95%: 0.522- 0.895). The want for online healthcare consultations was popular but usage low.

### References

- Abdollahi, H., Mahoor, M., Zandie, R., Sewierski, J., & Qualls, S. (2022). Artificial Emotional Intelligence in Socially Assistive Robots for Older Adults: A Pilot Study. *IEEE Transactions on Affective Computing*, 1–1. <https://doi.org/10.1109/TAFFC.2022.3143803>
- Anderberg, P., Abrahamsson, L., & Berglund, J. S. (2021). An instrument for measuring social participation to examine older adults' use of the internet as a social platform: Development and validation study. *JMIR Aging*, 4(2), e23591–e23591. <https://doi.org/10.2196/23591>
- Berner, J., Aartsen, M., & Deeg, D. (2019). Predictors in starting and stopping Internet use between 2002 and 2012 by Dutch adults 65 years and older. *Health Informatics Journal*, 25(3), 715–730.
- Chu, C. H., Nyrup, R., Leslie, K., Shi, J., Bianchi, A., Lyn, A., McNicholl, M., Khan, S., Rahimi, S., & Grenier, A. (2022). Digital Ageism: Challenges and Opportunities in Artificial Intelligence for Older Adults. *The Gerontologist*, gnab167. <https://doi.org/10.1093/geront/gnab167>
- Lagergren, M., Fratiglioni, L., Hallberg, I. R., Berglund, J., Elmståhl, S., Hagberg, B., Holst, G., Rennemark, M., Sjölund, B.-M., Thorslund, M., Wiberg, I., Winblad, B., & Wimo, A. (2004). A longitudinal study integrating population, care and social services data. The Swedish National study on Aging and Care (SNAC). *Aging Clinical and Experimental Research*, 16(2), 158–168. <https://doi.org/10.1007/BF03324546>
- Lythreathis, S., Singh, S. K., & El-Kassar, A.-N. (2022). The digital divide: A review and future research agenda. *Technological Forecasting and Social Change*, 175, 121359. <https://doi.org/10.1016/j.techfore.2021.121359>
- McLean, A. (2011). Ethical frontiers of ICT and older users: Cultural, pragmatic and ethical issues. *Ethics and Information Technology*, 13(4), 313–326. <https://doi.org/10.1007/s10676-011-9276-4>
- Zambianchi, M., Rönnlund, M., & Carelli, M. G. (2019). Attitudes Towards and Use of Information and Communication Technologies (ICTs) Among Older Adults in Italy and Sweden: The Influence of Cultural Context, Socio-Demographic Factors, and Time Perspective. *Journal of Cross-Cultural Gerontology*, 34(3), 291–306. <https://doi.org/10.1007/s10823-019-09370-y>

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