

Taking health information behaviour into account in user-centered design of e-health services - key findings from an ongoing research project

Heidi Enwald 0000-0003-1953-2157

*Information Studies, University of Oulu, Oulu, Finland and
Information Studies, Åbo Akademi University, Turku, Finland
heidi.enwald@oulu.fi*

Kristina Eriksson-Backa 0000-0001-9758-0467

*Information Studies, Åbo Akademi University, Turku, Finland
kristina.eriksson-backa@abo.fi*

Noora Hirvonen 0000-0001-7577-3057

*Information Studies, University of Oulu, Oulu, Finland
noora.hirvonen@oulu.fi*

Isto Huvila 0000-0001-9196-2106

*Department of ALM, Uppsala University and
Information Studies, Åbo Akademi University, Turku, Finland
isto.huvila@abo.fi*

Keywords

E-health, health information behaviour, older adults, Finland

EXTENDED ABSTRACT

New e-health services and technologies are developed around the world with expectations of multiple individual and system-wide benefits. Even if there is no single reason why many e-health projects have failed to deliver their expected gains, one central contributing factor has been their narrow focus on technology and a failure to understand the use of e-health in the context of citizens' general health information behaviour. Here we report key findings from the ongoing research project "Taking Health Information Behaviour into Account: implications of a neglected element for successful implementation of consumer health technologies on older adults", funded by the Academy of Finland (2015–2020). The project aims at explicating premises for the development of e-health services that are comprehensible, meaningful, and useful in the context of how older adults seek, use and manage information, and more specifically health information, in their everyday lives.

Methods

Both quantitative and qualitative methods, including postal and web surveys and focus group interviews, were used to collect data on Finnish older adults' health information literacy and behaviour, as well as their views on e-health services, specifically the national patient-accessible electronic health record My Kanta. For example, a nationwide population-based survey was conducted among older adults (55+) in

summer 2019. In addition, we have carried out a systematic review of research articles on older adults' views of e-health services.

Results

The results of the systematic review indicated that e-health research tends to focus on system usability rather than usefulness, purposes, benefits, or value of the e-health services to their users. Overall, there is a heterogeneous body of research on how older adults view e-health services. Common themes that could be identified were uses, enablers, barriers, and outcomes of e-health services. In addition, it was found that the methodological approach of the study was associated with the type of findings that were reported. It seems that there is a positivity bias especially in quantitative studies (Hirvonen et al., 2020a).

Findings on Swedish older adults' preferences and motivation of ordering a copy of their medical record, as well as their use of medical record-based e-health and information services in the future indicate that older adulthood is a transitory stage of life where the need for health information increases and engagement with health changes (see e.g., Huvila et al., 2018). Preliminary results on Finnish older adults' views of My Kanta show, for instance, that concerns and barriers to use the service were socio-techno-informational and tightly associated with the contents of the system. Moreover, the results suggest that it is important that the information available in e-health services is coherent and timely.

Findings based on multiple quantitative surveys and comparison of health information literacy and technology use across age groups indicate that older adults tend to value health information, but struggle to find and understand it (Hirvonen et al. 2020b). Moreover, older adults who estimate their health information literacy skills as poor, also tend to have negative attitudes towards and have less experience with mobile information technology (Enwald et al., 2017). Instead of improving or declining by age, health information literacy seems to be adapting to the challenges of advancing age (Huvila et al., 2019a).

The project group has also taken part in the discussion on how an interdisciplinary dialogue between information behaviour research and systems and service design can be supported (Huvila et al., 2019c). Interdisciplinary and cross-domain comparisons show that the problem with approaches that are narrow and rather focused on technology than socio-technical factors is not specific to the health information field. At the same time, they suggest that approaches adopted from other contexts can be helpful in informing the design of better systems and services in this particular domain.

Discussion

By taking a holistic view on e-health and its use and users, the project emphasises the interconnectedness of the information behaviour of human beings, technology, and their socioeconomic environments. The gained understanding on user behaviour and practices, as well as the actual utility value of the studied e-health services and the results, can have practical implications and be useful to both improve existing services and to develop new ones.

References

- Enwald, H., Hirvonen, N., Kangas, M., Keränen, N., Jämsä, T., Huvila, I. & Korpelainen, R. (2017). Relationship between everyday health information literacy and attitudes towards mobile technology among older people. In: S Kurbanoglu, et al. (Eds) *Information Literacy in the Workplace: 5th European Conference, ECIL 2017, Saint-Malo, France.* (pp. 450-459). Berlin: Springer
- Hirvonen, N., Enwald, H., Käsäkoski, H., Eriksson-Backa, K., Nguyen, H., Huhta, A.-M. & Huvila, I. (2020a). Older adults' views on eHealth services: a systematic review on scientific journal articles. *International Journal of Medical Informatics* 135, 235-248.
- Hirvonen, N., Enwald, E., Mayer, A-K., Korpelainen, R., Pyky, R., Salonurmi, T., Savolainen, M. J., Nengomasha, C., Abankwah, R., Uutoni, W., Niemelä, R. & Huotari, M-L. (2020b). Screening everyday health information literacy among four populations. *Health Information and Libraries Journal.*
- Huvila, I., Enwald, H., Eriksson-Backa, K., Hirvonen, N., Nguyen, H. & Scandurra, I. (2018). Anticipating aging: Older adults reading their medical records. *Information Processing & Management* 54(3), 394-407.
- Huvila, I.; Hirvonen, N.; Enwald, H. & Åhlfeldt, R.-M. (2019a). Differences in health information literacy competencies among older adults, elderly and younger citizens. In Kurbanoglu, S.; Špiranec, S.; Ünal, Y.; Boustany, J.; Huotari, M. L.; Grassian, E.; Mizrachi, D. & Roy, L. (Eds.) *Information Literacy in Everyday Life. ECIL 2018* (pp. 136-143), Berlin: Springer.
- Huvila I, Moll J, Enwald H, Hirvonen N, Åhlfeldt RM, Cajander Å (2019b) Age-related differences in seeking clarification to understand medical record information. In: Proceedings of ISIC, The Information Behaviour Conference. 2018 Oct 9-11; Krakow, Poland. *Information Research* 24(1):isic1834.
- Huvila, I., Enwald, H., Eriksson-Backa, K., Liu, Y.-H. & Hirvonen, N. (2019c). Information behaviour and practices research informing technology and service design. *Proceedings of the Association for Information Science and Technology* 56(1), 541-545.

Suggested Citation

- Enwald, H., Eriksson-Backa, K., Hirvonen, N. and Huvila, I. (2020). Taking health information behaviour into account in user-centered design of e-health services - key findings from an ongoing research project. *Trends in Information Science – The ASIS&T European Chapter Research Series. 08-10 June 2020. Virtual conference.* doi:[created by organizers via Zenodo]