

Summary of the PhD Dissertation

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Place	Maastricht, The Netherlands
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Curriculum Vitae

Friederike J.S. Thilo, PhD, RN, is a researcher, lecturer and head of the innovation field “Technology and Health” at Bern University of Applied Sciences BFH, Bern. She is a registered nurse and has worked for eight years in different areas of specialty at the Centre Hospitalier Universitaire Vaudois, Lausanne. She obtained both her BSc in 2009 and her MSc in Nursing in 2012, at the BFH. Friederike Thilo’s research interests are ageing in place, the interaction between humans and technology during caregiving, user-involvement in the development of technologies, and eHealth/digital skills in nursing.



Description of the project

The safety of older persons has been identified as a crucial component of ageing in place (Carpenter et al., 2017). In particular, long-lies after a fall jeopardize the physical and psychological health and wellbeing of community-dwelling older persons (Simpson et al., 2014; Fleming & Brayne, 2008; Johnston et al. 2010). Therefore, Personal Safety Alerting Devices (PSAD) are recommended to support safe ageing in place.

Unfortunately, older persons are still reluctant to use PSADs (Nyman & Victor, 2014; McLean, 2016; Heinbüchner et al., 2010). Although a majority of older persons view PSADs favourably; only a minority of older persons actually use them (Chaudhuri et al., 2014; Künemund & Tanschus, 2014). Suggested technology acceptance models exhibit several limitations, e.g.: technology acceptance may fluctuate over time, which is not taken into account (Yousafzai et al., 2007); or they do not include the step of adoption of a technology (Kiwauka, 2015). Additionally, little is known about the perspective of relatives, community nurses and general practitioners, who are both pivotal for ageing in place and PSAD use and non-use in daily life.

Therefore, it was essential to gain a meaningful understanding of processes and factors influencing PSAD use and non-use in older persons from the key stakeholders of ageing in place, i.e. older persons, their relatives, community nurses and General Practitioners (GPs).

In this doctoral thesis, five studies were conducted utilizing a multi-perspective, predominantly qualitative approach, to investigate PSAD use and non-use of community-dwelling older persons. In the first study, a scoping review was conducted regarding the nature and extent of the involvement of older persons in the development of PSADs. In the second and third studies, the needs and preferences of community-dwelling older persons were taken into consideration. They were involved in the various stages of the development of a wearable, waterproof and automatic fall detection PSAD. In the fourth and fifth studies, older persons reasons, thoughts, motives and influencing factors for PSAD use and non-use were explored. The perspectives and experiences of relatives, community nurses and general practitioners were also examined and integrated into the study.

The conducted studies have been/will be published in international peer-reviewed journals. Already published are:

Thilo, F.J.S., Hahn, S., Halfens, R.J.G., and Schols, J.M.G.A. (2018). Usability of a wearable fall detection prototype from the perspective of older people - a real field testing approach.

Journal of Clinical Nursing, 00:1-11. doi:10.1111/jocn.14599

Thilo, F.J.S., Bilger, S., Halfens, R.J.G., Schols, J.M.G.A., and Hahn, S. (2017). Involvement of the end user: exploration of older people's needs and preferences for a wearable fall detection device - a qualitative descriptive study. *Journal of Patient Preference and Adherence*, 11, 11-22.

Thilo, F.J.S., Hürlimann, B., Hahn, S., Bilger, S., Schols, J.M.G.A., and Halfens, R.J.G. (2016).

Involvement of older people in the development of fall detection systems: a scoping review. *BMC Geriatrics*, 16 (42).

References:

Carpenter, D., Famolaro, T., Hassell, S., Kaeberle, B., Reefer, S., Robins, C., & Siegel S. (2017) *Patient Safety in the Home: Assessment of Issues, Challenges, and Opportunities*. Cambridge, Massachusetts: Institute for Healthcare Improvement.

Chaudhuri, S., Thompson, H. & Demiris, G. (2014) Fall Detection Devices and Their Use with Older Adults: A Systematic Review. *Journal of Geriatric Physical Therapy*, 37(4), 178-96.

Heinbüchner, B., Hautzinger, M., Becker, C. & Pfeiffer, K. (2010) Satisfaction and use of personal emergency response systems. *Zeitschrift für Gerontologie und Geriatrie*, 43(4), 201-23.

Fleming, J. & Brayne, C. (2008) Inability to get up after falling, subsequent time on floor, and summoning help: prospective cohort study in people over 90. *BMJ*, 337, a2227.

Kiwanuka, A. (2015), *Accpetance Process: The Missing Link between UTAUT and Diffusion of Innovation Theory*. *American Journal of Information Systems*, 3(2), 40-4.

Kuenemund, H. & Tanschus, N.M. (2014) The technology acceptance puzzle. Results of a representative survey in Lower Saxony. *Zeitschrift für Gerontologie und Geriatrie*, 47(8), 641-7.

Johnston, K., Worley, A., Grimmer-Somers, K., Sutherland, M. & Amos, L. (2010) Personal alarm use to call the ambulance after a fall in older people: characteristics of clients and falls. *Journal of Emergency Primary Health Care*, 8(4), 1-9.

McLean, P.A. (2016) *Exploring older Adults' Perceptions of the Utility and Ease of Use of Personal Emergency Response Systems*, in Faculty in Nursing. CNUY Academic Works: New York.

Nyman, S.R. & Victor, C.R. (2014) Use of personal call alarms among community-dwelling older people. *Ageing & Society*, 34(1), 67-89.

Simpson, P.M., Bendall, J.C., Tiedemann, A., Lord, S.R., & Close, J.C. (2014), Epidemiology of emergency medical service responses to older people who have fallen: a prospective cohort study. *Prehospital Emergency Care*, 18(2), 185-94.

Yousafzai, S.Y., G.R. Foxall, & Pallister, J.G. (2007) *Technology acceptance: a meta-analysis of the TAM: Part 2*. *Journal of Modelling in Management*, 2(3), 281-304.