Short Paper

Gerontechnology is essential for ageing-in-place

A gerontecnologia é essencial para o envelhecimento no local

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Abstract

Ageing-in-place is an umbrella term covering all aspects of living independently at home. It also emphasizes the desire of older people to stay in their well-known neighborhood with services they are familiar with and to stay in the community they know with neighbors, family, friends, and acquaintances from a long time ago. When ageing though, older people will need help and support to age-in-place, depending on the phase of ageing and the (potential) need for help or support. For ageing-in-place I have been using two constructions to distinguish the extent of support or tools that can be used to stay at home. One construction comprises the adagio *My Home, Is My Castle,* expressing the independent position of the older adult living at home. The other construction is *Living Comfortably at Home*, expressing the wish to stay as long as possible at home, even when having one or more chronic disorders or experiencing a functional or mental decline, with the support of family and or professional care or assistive tools. The domains in which these constructions occur will be discussed, focussing on the latter construction while also providing an insight into the potential of technological innovations to avoid the feeling of loneliness or social isolation.

Keywords: Homes. Communities, Assistive Technologies. Digital aids. Services.

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Introduction

Ageing-in-place is an umbrella term covering several aspects of staying as long as possible at home. Ageing-in-place is just not only the desire of many older people but is also a policy topic in many ministries of Health Care or Long-term Care. Ageing-in-place taken from a policy perspective is promoted as a solution to the shortage of healthcare staff. Furthermore, realizing ageing-in-place also comprises a paradigm shift for healthcare workers from cure to care; namely taking care of someone towards to be able to live as wanted despite the functional or cognitive decline.

Looking from a gerontechnology perspective ageing-in-place covers several participation domains as well as technological applications. Ageing-in-place relates strongly to how you feel where you live; living comfortably, in a familiar community and the emotional attachment to the home, the value of the house, the neighborhood; and the community; the location, and services in the urban area as well as the availability of the social network.

In this paper, an overview of the domains and technological applications is given, with a focus on the technological applications and on how to avoid or reduce social isolation when staying at home. The objective is to identify which participation domains and technological applications occuring in the gerontechnology matrix can be related to realizing ageing-in-place.

Materials and methods

Initially, the domains and technological applications of ageing-in-place are derived from the work of Raymundo and Kort. These are categorized according to the gerontechnology matrix, after that the domain of the social network is further elaborated regarding the available technological applications, their penetration in the market (AgeTech value) by use of the scoping review of Huisman et. al (2022) and the systematic review of Rai et. al (2022).

Results and discussion

The domains in ageing-in-place can be categorized by applying the *gerontechnology matrix* (KORT, et.al.,2014) as follows: home care services (*Health & Self-esteem*); home design; sustainable and affordable housing and types of homes (*Housing & Daily Living*); neighborhood, infrastructure/environment (*Mobility & Transport*); social network, family, caregivers, older couples/Spouse relation (*Communication & Governance*). No items are linked to the domain *Work & Leisure*, which can be executed outside the home.

Technological applications comprise Assistive Technologies including digital assistive technologies as well as social assistive technologies, decision support apps; e-Health/m-health; Internet of things (IoT); health and activity monitoring, robots (home care robots), home environment (Active and Assisted Living (AAL) solutions, and smart homes or almost ready smart houses. When focusing on the domain of the social network related to the hypothesis that sleep contributes to next-day performance and therefore affects the display of challenging behavior of people with dementia, the feeling of loneliness and social isolation, most articles researching technological applications addressed lower the care burden and or improve sleep, respectively 13, 5 and regarding the combination of both resulting in 14 articles. Moreover, in the scoping review, only digital assistive technologies and social assistive technologies are identified on a level of acceptance.

In the systematic review, only 10 articles describing technological applications were identified that address social isolation and the feeling of loneliness. All of them were not identified in the context of ageing-in-place but they do give a better understanding of which technological applications are being used in the domain of the social network. Furthermore, one can dispute that technological applications can be used for aging-in-place but there is a difference in those used in residential or long-term care because of the implementation and affordability aspects. This is one of the reasons amongst others why the International Society for Gerontechnology (ISG) has signed a Memorandum of Understanding with the World Health Organization (WHO) on Assistive Technology for Healthy Ageing. The project is divided into three pillars, namely capturing the criteria and assessment of assistive technologies, setting the scope of assistive technologies, and disseminating the findings. The project is expected to deliver more in-depth insight into assistive technologies for ageing-in-place.

Conclusion

In the domain of the social network, only digital assistive technologies and social assistive technologies could be identified on a level of acceptance. Only a few technological applications could be categorized on a level of acceptance. Most technological applications remain on an operational level. So not reaching an acceptable level. Products cannot be labeled as AgeTech. Meaning that understanding and leading innovations in the market are still limited.

Acknowledgments

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