AGEING AND AGEING CITIES: HEALTHY AND FUNCTIONAL

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abstract

By 2050, 70% of the population will live in cities. The majority of the persons living in cities will be 60 plus years old. Ageing cities demands for cities environments to adapt to an ageing population. Modern cities though, don't anticipate fast enough and in an adequate manner to face the challenges due to population-related transitions. Modifying and adapting the built environment with a focus on the aged population could help to support older people facing functional and cognitive decline.

keywords

Ageing Population. Cities. Environment. Support.

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1 Introduction

The proportion of the population 60 or over will increase. The Global Age Watch Index has compared the population in 2015 with the predicted one in 2050. Noteworthy is that not only Western countries are ageing but also so-called emerging markets, in Asia, as well as India and Brazil. Ageing even will occur in Africa (GLOBAL…, 2015). Ageing will occur in these countries due to the fact that people live longer, but also due to the fact that young people migrate from (rural) area to urbanized areas. Areas where young persons have a higher chance to find work and have a successful life. Even in the south of India, in Kerala this migration is occurring, resulting in an aged area in the nation. A nation which is considered as a young-populated nation. Similar migration is noticed in Brazil. Young persons but also other cohorts move to city areas for economic reasons and to pursue a better life. Future cities have to deal with a population where people older than 65 outnumber children under 15 years old (WHO, 2015). The transitions in the make-up of the population lead to significant challenges, including a healthy and safe living environment; housing; work; education, leisure and transportation.

Cities are facing several challenges. These are not only related to population-related transition but also related to climate, energy and other transitions. Cities are urged to reorganize facilities for changing city life and to restructure housing, buildings and infrastructure. They have to deal with the population--related transitions but also with the aligned energy-transition, connectivity, transport and mobility transitions in urban areas. Furthermore, the mission in cities will be to respond in a comprehensive and structured way and not just letting the city respond as an open uncontrolled ecosystem. To meet the challenge of an ageing and growing population in a resource-efficient way, cities need to be resilient, i.e. in keeping what is good and valuable. At the same time, it is necessary to develop concepts for the future of living, safe and convenient housing and transport with near-zero CO_2 emission.

During the life course, people also have to deal with several challenges. Challenges occur on all participation domains. When ageing, the functional capacity and cognitive functioning will decline due to the biological ageing. Individual themselves, but also governments can take actions to prevent that individuals' functional and cognitive abilities to decline under the disability threshold – the threshold under which people will become dependent on others. By then (care) professionals are needed that will support persons who are functioning under or at the disability threshold. In addition to (care) professionals, the indoor and outdoor environment can also have features to

support people in need. For ageing policy, governments try to have their policy aligned with the framework of active ageing. Active ageing is, according to the World Health Organization (2002), influence by Health and Social Services, Behavioral determinants, Personal determinants, Social determinants, Economic determinants and the Physical environment. The determinants are dependent on gender and culture. The active ageing framework is also a starting point for cities to create age-friendly cities. In age-friendly cities, the following built environment-related domains are relevant: Outdoor spaces and Buildings, transportation, communication and information, and Housing. Other domains are social participation, respect and social inclusion, civic participation and employment, community support and health services (WHO, 2007).

2 Purpose

In this paper, the focus is on those domains from the active ageing framework that are related to the built environment. With this paper, we want to enhance the awareness of professionals and scientist both from health care, design and the built environment in the demands imposed by ageing cities. The paper will discuss some of the demands for Outdoor spaces and Buildings, Transportation, Communication and Information and Housing. The other domains relevant to ageing cities are not in the scope of this paper (WHO, 2007). This paper will give input to the thoughts and ideas of scientists and professionals in the development of projects to address the challenge of creating smart and livable cities for an ageing population.

3 Methods

The paper is an expository article and written from the gerontechnological perspective. Gerontechnology is a multi-disciplinary domain combining both gerontology and technology. In Gerontechnology, technology solutions or designs are developed with the focus to have an outcome in gerontology. All kind of low-tech is high tech technological solutions and are applicable as long as the outcome will benefit the ageing adult. Outcomes could be on health, self-esteem, housing, daily living, transport, mobility, communication, governance, work, and leisure activities (BOUMA; FOZAR; VAN BRONSWIJK, 2009). It is relevant to keep in mind that the process of ageing can be thoroughly healthy. Illness is not a necessary part of ageing. Furthermore, the view on illness has changed with the introduction of positive health. Positive Health defines

health as the ability to adapt and self-manage while facing the challenges of having a (chronic) disorder (HUBER *et al*., 2016). This can be also applied to the city level. Cities have to deal with the challenges of an ageing population. In the next paragraphs, each of the relevant domains in ageing cities is discussed.

4 Outdoor spaces and buildings

Most older people feel very vital. They want to be part of society and live independently as long as possible. Older people could though experience limitations in their mobility. Outdoor spaces and buildings are especially challenging because some older people cannot rely on their mental map. Outdoor activities such as shopping or using public transportation are also challenging due to the limitation in visual functioning. Nevertheless, older people will be outdoors while using all kind of assistive technologies. Challenges that older people could encounter are, for instance, stepping-up on an escalator which has a relatively high speed in order to process a huge amount of travelers in railway stations. This could lead to avoiding escalators or lead to an imbalance and cause a fall. Although, usually an elevator is also placed near the evaluator. However, sometimes this is not in-sight to older people. Especially for those suffering from an eye disease.

In cities, people also have to be fast just as Usain Bolt when crossing the street at a traffic light. Older people need to have a firm grip on their walker when using one when they want to cross the street. That is because in cities, the green light for pedestrians does not take into account the slower pace of older people. So the accessibility of cities and cities infrastructure does not take into account the slower walking pace of older citizens. Limitations outdoors could also be due to air pollution caused by particulate matter (smog) or to exposure to noise (SILVA; RIBEIRO, 2012). Noise caused by city traffic and citizens could disturb older people to fall asleep at night or will wake them up in the morning. Older people also could experience huge discomfort due to high temperatures in cities during the summer season. This situation will keep older persons locked to their homes. Meanwhile, they have to pay attention not to be dehydrated. Supportive urban planning though gives a sense of independence and autonomy to older persons. Outdoor environmental aspects contributing to older people's independence and autonomy could be reached by creating neighbourhood walkability (VAN HOOF; KAZAK, 2018), access to facilities, the availability of green spaces and organizing support for social contacts among neighbours (KEMPERMAN; TIMMERMANS, 2014).

5 Transportation

As there are differences in cities and city design, so also in cities infrastructure and the use of transportation. Older people will keep using the transportation they are used to whether this is by car or by public transportation. Use of transportation is of course also culture related. In the Netherlands, bicycles are a popular manner of transportation that is also used by older people up to a high age. On their bicycle, they can be at risk, because their field of vision is narrowed due to biological ageing of the eyes. They have to get used to and do exercises to turn their head while changing lines. Older persons use both traditional bicycles as well as electronic bicycle. The latter compensates their muscle mass loss in the legs and enables an older person to enjoy city life by bike. Cycling contributes to people's health and well-being (VAN DEN BERG; KEMPERMAN; WAYGOOD, 2019).

Some cities offer special transportation to older people. This can be using gulf carts as transport for a group of people from their home to their activities. Other cities, especially in cities with less public transportation, offer older people to get on self-riding busses with no chauffeur. For this kind of transportation, older people have to get comfortable with and their trust needs to be gained since they were not exposed to this kind of transportation when growing up. Older people also use communication and information technologies to plan their journey. Several public transportation apps can support them with this. Some older persons will use the digital itinerary produced by the app, while others still prefer to print the itinerary on paper.

6 Information and Communication Technology

Older people use Information and Communication Technology (ICT) not only to get their itinerary but also for online shopping. Although older people were not exposed to ICT when growing up, they have learned to use this extremely well. ICT is used to stay in connection with others via social media such as Facebook. Currently, youngsters even label Facebook as social media for parents and grandparents. The use of social media could help to prevent social isolation in cities. Older people also use WhatsApp as a sort of good-morning-good-evening service, which might not be the intention of WhatsApp inventors. Being part of such a friend group in WhatsApp function to signal whether friends and neighbors are all right or not. Furthermore, it helps to stay connected with friends even with those living on the other side of a city and further away.

7 Housing

'My home is my castle', is a very well-known expression to say that there is where you are in control, you know the place, it is designed to your wishes and where you feel comfortable and happy. Ageing people also have a desire for their home to be their castle. Unfortunately, they have to accommodate their activities during the life-course due to the biological ageing process. Functional and cognitive decline could limit their social participation. Things that they used to do without any support could be less feasible or only feasible with extra effort. For ageing-in-place, the house needs to have sight- and walking lines that support their mobility and in-house transfer. Vertically transfer could be an earlier barrier when ageing-in-place, due to functional decline caused by the deterioration of the locomotion muscles. Keeping your gait and balance (while climbing stairs) will become a challenge when ageing. Therefore, older people prefer to age in zero-steps (same-floors) dwellings that have easy access and have a lower risk of falls. Nowadays, it already exists several assistive technology aids that can support vertical transfer in a safe manner. Municipalities could take this issue into account for urban-planning, namely, to design same-floors dwellings for their senior citizens. High rise flats are same-floor dwellings, but the disadvantage for older people could be that there is less social connectedness with the outside world (the neighbourhood). This external factor may contribute to the risk of social isolation. Social isolation could be addressed when designing so-called co-housing dwellings, in which people share a common room, like a kitchen or living room with peers or with adult children (DRUTA; RONALD, 2017). Having view lines with outdoor views just as applied in the Rietveld-Schröder House could have a positive influence on older people comfort and health (KORT, 2018). In addition to having appropriate sight and walking lines, appropriate building physical conditions could also support older people to age-in--place. The only challenge for this is that currently housing building norms for building physical factors (light, temperature, air quality and acoustics), don't take into account the perspective of an ageing person. However, well-known is that older persons their physiological system function differently than those of younger cohorts. Older people respond differently to thermal conditions than younger persons. Persons with the dementia syndrome have a slower and different response to changes in the indoor climate (VAN HOOF *et al*., 2017).

Not only the indoor climate in the home is relevant for older people's comfort and health, but also, the outdoor climate in cities influences people's life. In cities, the out-side temperature could rise to levels which can be very

uncomfortable to live with. Modern cities are still designed with concrete and "hard" materials, which are less equipped to lessen the hot temperatures in cities during summer. The latest years though cities are being designed as green cities, with green lanes in order to offer shadow, lower the city temperature in summer and to take away outdoor pollution via using biophilia. These green (biophilic) cities are not only sustainable cities (BEATLEY; NEWMAN, 2013), but they should also be designed taking into account the perspective of ageing citizens.

8 To end

Not all the challenges that older people are facing in cities are addressed in this paper. This paper is based on the presentation held on the III Brazilian Gerontechnology conference in São Paulo on October 11, 2019. The presentation was held to introduce this topic to the Brazilian Gerontechnology Society. The paper gives an introduction to the challenges older people are facing while living in cities and has as an objective to enhance the awareness regarding this topic. Furthermore, the message should be spread that cities are not designed yet from the perspective of challenges that older persons are facing.

ENVELHECIMENTO E CIDADES ENVELHECIDAS: SAUDÁVEL E FUNCIONAL

resumo

Em 2050, 70% da população viverá nas cidades. A maioria das pessoas que vivem nas cidades terá 60 anos ou mais. O envelhecimento das cidades exige que os ambientes das cidades se adaptem ao envelhecimento da população. No entanto, as cidades modernas não se antecipam de forma rápida e adequada para enfrentar os desafios decorrentes das transições relacionadas à população. Modificar e adaptar o ambiente construído com foco na população idosa pode ajudar a apoiar os idosos que enfrentam declínio funcional e cognitivo.

palavras-chave

Envelhecimento populacional. Cidades. Ambiente. Suporte.

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