Spearheading Ageing-in-place in Asia through Transforming the Neighbourhood Environment*

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Urbanization and an ageing population are two global mega-trends in the 21st century. Asia is no exception. While the population is still relatively young in Laos, Cambodia, Burma and the Philippines, ageing has become a pressing issue in Hong Kong, Japan, and Singapore.

Nowadays, there is increasing evidence to show that many seniors prefer to live in cities even when given a choice of relocating to small towns. The desire to remain in high-density urban areas is partially related to easy access to health services and living amenities, as well as a desire to keep social bonds with a familiar neighbourhood and to live near grown-up children and grandchildren.

This is where the concept of ageing-in-place, which refers to policies and measures to encourage and support older people to live in their familiar neighbourhood environment and at home rather than to move to special care facilities, becomes relevant. As ageing-in-place gets wider support in society, cities are likely to be the homes of more seniors. How can we transform our cities to be more age-friendly, to support ageing-in-place and enhance the quality of life of the older population?

In order to answer this question of fundamental theoretical and practical significance, we put people at the centre of the analysis and consider each individual to be nested within and moving around their living environment at different spatial scales, from (1) the micro-scale living environment of one's home, (2) the meso-scale living environment of a local neighbourhood or community (taken to be about 10 minutes' walk or roughly 500 meters around one's home) to (3) the macro-level living environment (encompassing the city, region, country and beyond). With this geographical framework, we collected data and views from community-dwelling seniors in Hong Kong, Singapore and Tokyo through the local community centres near where they lived.

Six hundred and eighty-seven seniors aged 65 and above living in Hong Kong (242), Singapore (247), and Tokyo (198) living in 11 residential neighbourhood districts participated in this study. As health is a key element in affecting quality of life and life satisfaction, especially among older people, we focused on physical and mental health scores as the major dependent variables of interest. At the individual level, personal characteristics related to the individuals, families and homes were gathered. They include many demographic and socio-economic characteristics, such as gender, age, height, weight, medical history, educational level, home location, living arrangements, household car ownership, weekly activities and the level of physical activity performed. At the meso-neighbourhood scale, respondents' subjective perceptions about their local neighbourhood were captured.

We pioneered new ways of capturing the characteristics of a local neighbourhood beyond administrative units and moved towards the definition of a people-based neighbourhood. The first set of neighbourhood characteristics reflect the immediate surroundings of one's home and one's perceptions and/or personal experiences with people living in the same community. They are called individual-specific local factors. The second set of neighbourhood characteristics is more general, reflecting common and general conditions of a local area that people in a neighbourhood share. They are labelled general neighbourhood characteristics. A whole series of both objective and self-reported perceived variables pertaining to the dimensions of (1) density, diversity and design, (2) network distance or walking time to facilities that are relevant to the daily life of older people living independently, (3) perceived walkability and (4) social capital were collected. At the macro-scale, nine city-level factors including area, population size, population density, income, life expectancy, and weather conditions were compiled.

Multilevel analysis was then used to disentangle the effects of factors operating at different spatial scales. Personal and individual-specific local variables, which vary by individual, were inputted as level-one variables. Then, all general neighbourhood attributes were considered as level-two variables. Finally, all city-level variables were considered as level-three variables. Though numerous three-level (city-neighbourhood-individual) and two two-level (city-individual and neighbourhood-individual) hierarchical linear models were tested, the final best models for both physical and mental health scores were the neighbourhood-individual (two-level) models. The results reflect and confirm the importance of personal and neighbourhood factors in understanding the health status of seniors in the three Asian cities.

Generally, 17.53% and 8.24% of the variance in the physical and mental health scores, respectively, is across general neighbourhoods and the remaining is at the individual level, including individual-specific neighbourhood factors. At the individual level, personal factors are of great importance in affecting the physical and mental health of community-dwelling seniors. However, "unchangeable" biological factors such as gender and age do not seem to be the most important. Instead, having a normal range of weight and the proper use of walking aids can allow seniors, even of the oldest-old group of 85 years or above, to be more active in the community. This is a noteworthy finding given that the frail elderly are consistently depicted as unconnected with other group members in society. Local governments and community-based organisations should look for ways to encourage them to stay connected with people in their communities and live active, social and fulfilling lives.

Secondly, although this research covers three major Asian metropolitan cities with very different cultures and other geographical contexts, the association of neighbourhood factors with health are independent of the city that the seniors are living in. Regardless of the heterogeneity observed among seniors in Hong Kong, Singapore and Tokyo, neighbourhood factors are important in affecting both seniors' health directly through subjective perceptions of walkability and peer group influence, and indirectly through their lifestyle. At the local community level, facilities and activities that help to promote social capital should be available to support healthy ageing-in-place. Seniors who feel that their neighbours are helpful and those having a sense of community have both better physical and mental health. In particular, neighbours in the same community can be encouraged to walk together as "walking buddies" to achieve multiple health benefits.

Thirdly, this study draws on a multi-level approach emphasizing multiple geographical scales in understanding the health of seniors. There is a need to recognize and measure neighbourhood factors with reference to the daily life of seniors and beyond administrative boundaries. A multi-level policy to support ageing-in-place should go beyond visiting seniors at home and modifying their home environment but also making the general neighbourhood environment supportive and pleasant.

Last but not least, promoting a walkable neighbourhood with smooth surfaces (through walkability audits, for example) by enhancing the comfort, convenience and safety of pedestrians (including those using walking aids or wheel chairs on pedestrian walkways) should be a priority policy area for governments aiming to support or promote healthy ageing-in-place. Through addressing the conceptual and methodological challenges, this study managed to conduct an integrated spatial analysis by combining perceived and objective measures. On the one hand, it captured important information about an individual's relationship with his/her environment through questionnaire surveys. On the other hand, it collected different objective neighbourhood information through micro-scale walkability assessments and various land use data. These general local characteristics can, in turn, be modified by policy interventions. By combining different data, this multilevel spatial framework allows for a more systematic evaluation of the independent and combined effects of various subjective and objective urban environmental attributes on the physical and mental health of our older populations.