

Analysis of elderly's needs and use patterns of community facilities

Siqiang WANG, Esther Hiu Kwan YUNG

Abstract— Aging population has become a world-wide challenge for not only social services, but also the built environment of neighborhood. Community facility is a key element of built environment that has significant impact on elderly's daily lives. However, current planning and design guidelines mainly proposes the requirement of provision of community facilities and is lack of knowledge about older people's needs, preferences, and use patterns of community facilities. Most relevant studies from western countries cannot be directly applied in the context of Asian cities due to their different urban densities, degrees of car dependence, and culture. This study aims to explore elderly's needs and characteristics of use pattern of community facilities in local neighborhoods. In addition, this study also intends to identify the key influential factors of elderly's use of community facilities. Six focus group meetings were conducted in Elderly Community Centers in Kwun Tong from Oct 2019 to Jan 2020. The qualitative analysis method was employed and NVivo was used to analyze the qualitative data obtained from focus group meetings. Elderly centers and open space were found as the most frequently visited community facilities, and the main purposes of using these community facilities were doing physical exercises and gaining knowledge. A list of key factors was identified as influential factors that affect elderly's use of community facilities. Among them, Planning and design of community facility was found as the main concern for elderly people, followed by built environment of community. This study could help urban planners and designers to understand elderly's special needs and use patterns of community facilities, so that related community planning could be improved to promote aging in place.

Keywords—elderly, aging-in-place, community facility, urban renewal

Siqiang WANG
The Hong Kong Polytechnic University
Hong Kong

Esther Hiu Kwan YUNG
The Hong Kong Polytechnic University
Hong Kong

I. Introduction

Rapid ageing population is a global issue, which is also a big challenge to Hong Kong society. The number of elderly people aged 65 and above was 0.42m in 1986 and has already raised to 1.16m in 2016. In addition, the proportion of elderly people aged 65 and+ is projected to rise from 16.6% in 2016 to 33.6% (2.59 m) in 2066 [1].

Community facility refers to those facilities provided for the public on a daily basis in support of their social and community life in urban neighborhoods [2]. It is important to elderly's daily life in community and could provide support and meet elderly's needs to achieve aging in place. Thus, it would be helpful to increase provision of community facilities to support aging in place.

It is illustrated that neighborhoods and communities are also key elements that would affect elderly's ability to age in place expect their home [3]. Thus, to face the challenge of aging society and promote aging in place, provision of residential care services and community care services is not adequate, the planning of neighborhoods and especially the quantity and quality of community facilities should also be paid attention to enhance older people's aging in place ability [4].

Given all above, this research aims to 1) identify the social needs of the elderly, their preferences and usage patterns of community facilities in the local neighborhood; and 2) to explore the influential factors that affect elderly's use of community facilities.

II. Literature review

Aging in place, which is defined as “the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level”. [5], is an essential concept to face the global challenges of the aging process. Elderly people were found that prefer to age in the familiar place and maintain social networks in the neighborhood rather than move to nursing homes [6, 7]. It was also pointed out that apart from home, neighborhoods and communities also play important role in older people's ability to age in place [3]. The concept of ageing in place is also related to sense of attachment, security, familiarity, social connection, identity, independence and autonomy. Previous study indicated that a pedestrian-friendly urban environment and more active lifestyle can encourage ageing in place [4]. In addition, some other studies found that elderly people are redefining their careers, developing new leisure activities, learning new skills and volunteering in social activities [8]. Therefore, under the trend of rapid population ageing,

enhancing the ageing in place concept, is not just about the provision of residential care services and community care services but also about the planning of neighborhoods and especially the quantity and quality of community facilities [4].

Revitalization and urban renewal are commonly used planning strategies to improve the built environment to meet the rapid changing requirements of the different age groups in the older districts. However, it was found that redevelopment could brought about gentrification, damaged the local community and social networks and dislocated the local facilities [9, 10, 11]. Elderly often treat urban transformations as bringing stress to their lives [12], and posing threats to ageing in place, affecting overall neighborhood satisfaction [13]. Therefore, the planning of community facilities in response to the ageing population needs to be considered carefully, especially in older districts.

Community facilities which are suitable for the elderly include social centers, clubs, open spaces, meeting spaces and sources of informal support and contacts. It has been found that the most frequently used facilities by the elderly in Shanghai are the food market, open spaces, commercial premises, and elderly activity centers [14]. In Hong Kong, the common activities outside home include self-employment or volunteer activities, physical exercise, learning, cultural activities and leisure and shopping [15].

Different built environment characteristics are found to have association with quality of life of the elderly [16], health [4], physical activities, well-being, and neighborhood satisfaction [17, 18, 19]. A list of neighborhood satisfaction measures was developed, which consists of both physical and social criteria [20]. They include social networks, sense of community, perceived walkability, accessibility to destinations and transport, safety and noise from traffic, number and quality of shops and restaurants. A list of variables was extracted from previous literatures after considering special context of Hong Kong to be used in this study, which was shown in Figure 1.



Figure 1. Conceptual framework of influential factors that affect elderly's use of community facilities

III. Methodology

This study used focus group method to collect qualitative data of elderly's preference of using community facilities. This study selects Kwun Tong district in Hong Kong as representative of old districts, which is due to the following

reasons: 1) Kwun Tong is one of the old districts in Hong Kong which is under urban renewal process; 2) Kwun Tong has the highest elderly population (111,259) and highest elderly proportion (17.2%) in 2016 based on 2016 Population By-census [21].

Focus groups were organized and conducted in community centers in Kwun Tong district and elderly people who live in this district and frequently use the community facilities were invited as participants. One experienced researcher acted as moderator and two to three students would record elderly's opinions. The open-ended questions were employed to guide the focus group discussions and encourage elderly people to express their experience of using community facilities. Each focus group session lasted for around 45 minutes and following four questions were asked to elderly:

1. Which type of community facility you visited most frequently? What is your purpose to use these community facilities?
2. What is the time period you usually visit the community facility, and how long you will stay in the community facility?
3. Which transportation mode you usually take to visit community facility and how far of the community facility that you can accept?
4. What factors do you think will encourage/discourage you to use community facilities in Kwun Tong district?

The main research methodology involved in this study is qualitative analysis, including literature review and focus groups. NVivo 11 pro software was used to manage and organize the focus group data and help to analyze and find pattern of results. It has been proved that this software is a useful tool for qualitative analysis [22].

Six focus groups were conducted in the Kwun Tong district between October 2019 to January 2020. Totally 44 participates were investigated. Table I illustrates the characteristics of the focus group participants.

TABLE I. PROFILES OF PARTICIPANTS IN FOCUS GROUP

Kwun Tong district	
Age	
51-60	2 (4.55%)
61-70	8 (18.18%)
71-80	25 (56.82%)
81-90	8 (18.18%)
Above 90	1 (2.27%)
Gender	
Male	6 (13.64%)
Female	38 (86.36%)
Education level	

	Kwun Tong district
Primary or lower	29 (65.91%)
Secondary	13 (29.55%)
Post-secondary	2 (4.55%)
Frequency of visit to elderly center	
No	1 (2.27%)
1-2 days	13 (29.55%)
3-4 days	11 (25.00%)
5-6 days	6 (13.64%)
Everday	13 (29.55%)

iv. Results and Discussion

Table II illustrates the common responses and representative statements of the elderly people in the focus group in Kwun Tong district which reflect their use pattern and preference of using community facilities in this old district.

TABLE II. REPRESENTATIVE STATEMENTS FROM THE FOCUS GROUPS AND THE CORRESPONDING CRITERIA

Focus group questions	Preference — Most common responses from all focus groups	Corresponding to the criteria
Which type of community facility you visited most frequently?	KT03: I enjoy a lot of community facilities. Usually, I go to the community center.	Elderly center (65.8%)
	KT01: Usually, I go to the park and the jogging track for running.	Open space (42.1%)
What is your purpose to use these community facilities?	KT05: I do exercise because it is healthy.	Physical exercise (47.4%)
	KT02: I sometimes attend lectures to absorb knowledge.	Knowledge (28.9%)
What is the time period you usually visit the community facility?	KT02: After having breakfast, at around 8:30, I will go to the community center. At 9:30, I will go to ParkNShop.	Elderly center – morning (26.3%)
	KT23: Go to the park for two hours in the morning, for doing exercise. At around seven to nine a.m..	Open space – morning (36.8%)
How long you will stay in the community facility?	KT16: I must go to do exercises in the morning, about half an hour, and participate in activities in the afternoon if the activities are suitable for me.	Elderly center – depend on activity (18.4%)
	KT05: I do exercise for at least one hour. Someone teach us to do exercise and I feel happy.	Open space – 1-2hr (23.7%)
Which transportation mode you usually take to visit community facility?	KT10: On foot. Walking for fifteen minutes is acceptable.	Walking (60.5%)
How far of the community	KT08: On foot. Approximately half an hour.	Less than 30min

Focus group questions	Preference — Most common responses from all focus groups	Corresponding to the criteria
facility you can accept?		(36.8%)
	KT10: On foot. Walking for fifteen minutes is acceptable.	Less than 15min (34.2%)
What factors do you think will encourage/discourage you to use community facilities in Kwun Tong district?	KT33: I propose demolishing Wo Lok Estate, then rebuild it into a tall building, incorporating community center, library, sportsground, markets and restaurants in it.	Diversity (42.1%)
	KT04: I hope there are footbridges and underground tunnel for me to walk to the public facilities.	Walking facility (31.6%)
	KT09: Safety is of major concern to go to the community facilities. I usually avoid crossing roads and prefer using footbridges and underground tunnels.	Pedestrian safety (31.6%)
	KT19: There are too many people in community facilities, so there is not enough space for us (elderly). This community existed for many years, so there are too many residents. However, there are only little floors for the community center.	Size (26.3%)
	KT32: Next, for the elderly, without barrier-free facilities, it is very inconvenient. There are too much staircases, and they are too high and narrow. There should be armrest as the staircases are too narrow for elderly with a cane. We are scared to fall as our ankle may slip away.	Barrier free design (26.3%)
	KT07: If there is no one to talk with me, I would not go out.	Social interaction (18.42%)
	KT03: Staying healthy and the peer factor are why I use the community facilities, while being sick is why I cannot use the community facilities.	Health (18.42%)
KT30: Will go out without encouragement. I do not want to stay at home.	Lifestyle (18.42%)	

A. Elderly's use pattern of community facilities

The two most commonly used community facilities are elderly center and open space. The elderly center in Hong Kong is a mix-functioned center thus it provides variety of activities to elderly people. To some extent, it replaces the function of some other community facilities, such as public library. Elderly people visit elderly center for social interaction, learning knowledge and even doing physical exercises. Previous studies also pointed out that elderly centre is important to elderly's formal social network in Hong Kong [23]. The open space is more like a supplement of elderly center, especially before the opening of elderly center in early morning. Elderly people usually do physical exercises in open space in early morning. It could benefit their physical health and also social benefits as they also participate in group activities in open space [24].

The two most frequently mentioned purpose of elderly people to use community facility are doing physical exercises

and gaining knowledge. The purpose of doing physical exercises mainly reflect elderly's needs to keep healthy after retirement and it is the propose of visiting both elderly center and open space. The purpose of gaining knowledge reflects the fact that elderly people want to improve themselves and do not want to be isolated from society after retirement. Thus, they would attend courses provided by elderly centers or visit public library to read newspapers and books.

The spatial-temporal characteristics of elderly's use pattern of community facilities include their use time and transport to visit community facilities. For elderly center, 10 elderly people indicate that they visit elderly center in the morning and 6 mentioned they usually visit elderly center in the afternoon, which shows that elderly's common visit time is quite random, people may choose to visit elderly center in the morning or afternoon based on their own schedule or habit. For length of stay in the elderly center, most of the elderly people mentioned that it mainly depends on the activities organized in the elderly center, the attractiveness and the duration of activities.

For open space, 14 elderly people indicate that they usually visit open space in the morning, while only 1 elderly people said he/she visit open space in the afternoon and one in the evening. It shows that most of the elderly people choose to visit open space in the morning, especially early morning. It may because their purpose to visit open space is doing physical exercise, it may affect their use pattern of open space. Most of the elderly people mentioned that they may spend 1 to 2 hours on having activities in the open space.

B. Influential factors of using community facilities by elderly

For Planning and Design category, it is the most frequently mentioned category among four categories. Under this factor, two most frequently mentioned factors are Diversity (42.1%) and Size (26.3%). It shows that the provision related factors is the most important consideration variables that affect elderly's use of community facilities. As elderly people mentioned during focus group, diverse community facilities could meet their different needs of daily life. In addition, size is also essential factor as small community facilities may not provide enough space for activities and makes community facilities crowded. Overall, less kinds of community facilities and small size may make community facilities not attractive to elderly people in their local neighborhood.

For Built Environment category, it is the second frequently mentioned category among four categories. Under this factor, three most frequently mentioned factors are Walking facility (31.6%), Pedestrian safety (31.6%) and Barrier free design (26.3%). All these three factors related to the walking environment of the community, which may affect elderly's access to community facilities. Walking environment has been found as a important factors to elderly's use of community facilities and aging in place, which was in line with previous study [4].

For Social Environment category, the most frequently mentioned factor is Social interaction (18.42%), which shows

that social interaction is the main social needs for elderly people to use the community facilities. Elderly people mentioned that they do not want to be isolated from their social network, thus, it would be key needs for them to talk with friends and maintain the social network [25].

For Personal category, the most frequently mentioned factors are Health (18.42%) and Lifestyle (18.42%), which shows that elderly people visit community facility mainly for healthy purpose or due to their habit. Health status is a key factor that decides whether elderly people have ability to go for outside activities. In addition, pervious study also pointed out that active lifestyle could help to support aging-in-place [4]. Thus, elderly people who have active lifestyle may be more willing to visit community facilities for physical and social activities.

v. Conclusion

This study used focus group methods to explore elderly's social needs of using community facilities and identify the influential factors of using community facilities by elderly. This study found that elderly people most frequently use elderly center and open space. In addition, for the purpose of using community facilities, doing physical exercise or gaining knowledge were found as two most frequently mentioned purposes.

Regarding to the spatial-temporal characteristics of using community facilities, elderly people mostly walk to the community facility in the local neighborhood. 30 minutes' walking distance is acceptable. In addition, elderly people usually visit open space in the morning and the activity duration is around 1 to 2 hours. Furthermore, elderly people were found that usually visit elderly center in the morning or depend on the activity organized by the center. Thus, their visiting time and stay length both depend on the activities.

Planning and design of community facility was found as the main concern for elderly people when deciding whether to visit community facilities, and they mainly focus on the diversity and size of the community facility. Built environment is another important issue that may affect elderly's use of community facility, especially the walking environment around community facility, such as pedestrian safety and barrier free design.

Acknowledgment

This paper was fully supported by a grant from the General Research Fund of the Hong Kong SAR Government (Project No. PolyU 156102/18H).

References

- [1] Census and Statistics Department. (2017). Hong Kong Population Projections 2017-2066. Retrieved October 2019, from <https://www.statistics.gov.hk/pub/B1120015072017XXXXB0100.pdf>.
- [2] Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network analysis in the social sciences. *science*, 323(5916), 892-895.

- [3] Wiles J.L., Leibing, A. Guberman, N. Reeve, J. Allen, R. (2011) The meaning of "Aging in Place" to Older People. *The Gerontologist*, 52(3), 357-366.
- [4] Loo, B. Lam, W. Mahendran and Katagiri, K. (2017). How is the Neighborhood environment related to the health of seniors living in Hong Kong, Singapore, and Tokyo? Some insights for promoting aging in place, *Annals of American Association of Geographers*, 107(4), 812-828.
- [5] U.S. Centers for Disease Control and Prevention. (2009). Healthy Places Terminology. Retrieved October 2019, from <https://www.cdc.gov/healthyplaces/terminology.htm>.
- [6] Frank, J.B. (2002). *The paradox of aging in place in assisted living*. London: Bergin & Garvey.
- [7] Cabinet Office of Japan, (2007) *International comparison survey on elderly people's livelihood and consciousness*. Tokyo: Cabinet Office of Japan.
- [8] Johnson County Consortium . (2006). *Successful aging in Johnson County: A market analysis* . Johnson County , IA : Author .
- [9] Yung, E.H.K. & Chan, E.H.W. (2011). Quality of life and healthy aging in urban renewal. *Proceedings of the 16th International Symposium on Advancement of Construction Management and Real Estate, (CRIOCM 2011)*, 23-25 September, Chongqing, China, 146-151.
- [10] Yung, E. H. K., Zhang, Q., & Chan, E. H. (2017). Underlying social factors for evaluating heritage conservation in urban renewal districts. *Habitat International*, 66, 135-148.
- [11] Temelová, J., & Dvořáková, N. (2012). Residential satisfaction of elderly in the city centre: The case of revitalizing neighborhoods in Prague. *Cities*, 29(5), 310-317.
- [12] PHILLIPS, D. R., Siu, O. L., & HC, K. C. (2004). Ageing and the urban environment. In *Ageing and place: Perspectives, policy, practice* (pp. 147-163). Routledge Taylor & Francis.
- [13] Chui, E. (2008). Ageing in place in Hong Kong—challenges and opportunities in a capitalist Chinese city. *Ageing international*, 32(3), 167-182.
- [14] Yu, Yifan., Jia, S., Tian, F., Yu H., (2017) *STUDY ON ELDERLY-ADAPTABILITY LEVEL OF THE BUILT RESIDENTIAL AREAS IN SHANGHAI*, *Community Planning and Design*, 41(5), 20-26. (in Chinese).
- [15] Kwok, Y.C.J and Tsang, K.M. (2012) Getting Old with a good life: Research on the everyday life patterns of active older people, *Ageing International*, 37, 300-317.
- [16] Sugiyama, T. & Thompson, C.W. (2007) Outdoor environments, activity and the wellbeing of older people: conceptualising environmental support. *Environment and Planning A*, 39, 1943-1960.
- [17] Campo, P., Wheaton, B. Nisenbaum, R., Glazier, R. Dunn, J., Chambers, C (2015) *The Neighborhood Effects on Health and Well-being (NEHW) study*, *Health & Place* 31, 65-74.
- [18] Cerin, E., Sit, C. Zhang, C., Barnett, A, Sit, C., Cheung, M. Johnston, J., Lai, P.C., & Lee, R. (2016) Associations of objectively-assessed neighborhood characteristics with older adults' total physical activity and sedentary time in an ultra-dense urban environment: findings from the ALECS study, *Health and Place*, 42, 1-10.
- [19] Lee, S. M, Conway, T.L. Frank, L.D., Cain, K.L, Sallis, J.F. (2017) The relation of perceived and objective environment attributes to Neighbourhood satisfaction, *Environment and Behavior*, 49(2), 136-160.
- [20] Leslie, E. and Cerin, E. (2008) Are perceptions of the local environment related to neighborhood satisfaction and mental health in adults? *Preventive Medicine*, 47(3):273-8. doi: 10.1016/j.ypmed.2008.01.014.
- [21] Census and Statistics Department. (2018). *2016 Population By-census - Thematic Report: Older Persons*. Retrieved July 2020, from https://www.bycensus2016.gov.hk/data/16BC_Older_persons_report.pdf.
- [22] Welsh, E. (2002). Dealing with data: Using NVivo in the qualitative data analysis process. In *Forum qualitative sozialforschung/Forum: qualitative social research* (Vol. 3, No. 2).
- [23] Lau, A., Chi, I., & McKenna, K. (1998). Self - perceived quality of life of Chinese elderly people in Hong Kong. *Occupational Therapy International*, 5(2), 118-139.
- [24] Yung, E. H. K., Wang, S., & Chau, C. K. (2019). Thermal perceptions of the elderly, use patterns and satisfaction with open space. *Landscape and urban planning*, 185, 44-60.
- [25] Wen, C., Albert, C., & Von Haaren, C. (2018). The elderly in green spaces: Exploring requirements and preferences concerning nature-based recreation. *Sustainable Cities and Society*, 38, 582-593.

About Author (s):



Mr. Siqiang WANG is a PhD student of the Department of Building and Real Estate of the Hong Kong Polytechnic University. His research interests include aging and built environment, urban planning and heritage conservation.



Dr. Esther Hiu Kwan Yung is an Associate Professor of the Department of Building and Real Estate of the Hong Kong Polytechnic University. Her research focuses on aging and built environment and urban sustainability and policy.