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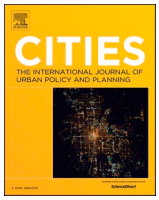

Older adults' capability to use community facilities and the associations with neighborhood satisfaction and well-being in high-density urban environments

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ABSTRACT

Community facility is an important social welfare resource that supports aging-in-place. However, studies to understand how older adults' use of community facilities could promote well-being are insufficient. Hence, this study aims to apply the capability approach to build a novel framework to explore the associations between community facility planning and older adults' well-being, and the roles of potential capability and conversion factors. The study applied spatial analysis and questionnaire survey. 509 older adults were interviewed in Kwun Tong and Sham Shui Po district in Hong Kong. The structural equation model was used to analyze the complex relationship among community facility provision, older adults' usage and well-being. Results show that only providing community facility is inadequate to promote older adults' well-being. Their satisfaction with the community facility should be increased. Walking environment and public transport are essential capabilities to support older adults' usage of community facilities. Perceived built environment and individual considerations, age, and elderly proportion of the neighborhood are significant conversion factors that help older adults convert community facility resources to well-being. The findings could extend the capability approach in the community facility planning area and generate new knowledge. It also provides essential implication insights to urban planners and policy makers to promote aging-in-place.

1. Introduction

Under the tendency of rapid population aging, encouraging the concept of aging in place is not only about providing residential care home and community care services but also relating to community planning and the quantity and quality of community facilities (Loo et al., 2017). Community facility refers to the facilities that are "basic to the maintenance of an appropriate standard of living" (Planning Department, 2022), such as convenience stores, elderly centers, and open space. The community facility plays a crucial role in promoting active aging, defined by the World Health Organization (2002) as "the process of optimizing opportunities for health, participation, and security in order to enhance the quality of life as people age." Research shows that community facilities can provide older adults with opportunities to engage in physical and social activities (Jones et al., 2013), leading to a healthier lifestyle and improved physical and psychological well-being (Chen et al., 2016; Wang, Yung, et al., 2022). As individuals transition into the third age (between 65 and 80 years old) (Laslett & Brenner, 1989) and the fourth age (over 80 years old) (Baltes et al., 1998), their subjective well-being becomes increasingly important as they have more leisure time and fewer work responsibilities. Therefore, community facilities serve as spaces for older adults to participate in various activities and enhance their overall well-being. The provision of community facility is also essential to promote the concept of "15-Minute City" (Moreno et al., 2021), as the facility is closely related to older adults' daily lives. It raises the challenges for urban planners to locate these welfare facilities within the neighborhood's borders (Rossi et al., 2023). However, insufficient studies well established the framework to understand the associations between community facilities and older adults' well-being (Li, 2020), particularly in high-density urban environments.

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Older adults may have different usage patterns and preferences for community facilities in high-density urban environments, considering the unique urban form and housing conditions (Vine et al., 2012).

Existing planning standards and guidelines mainly focus on the quantity of the community facilities and its location factors (Planning Department, 2022). Previous studies proposed some potential planning and design considerations for community facilities. For instance, from the facility level, the location (Bigman & ReVelle, 1978; Lea, 1979), size (Koohsari et al., 2015), diversity (Yung et al., 2016) should be emphasized. From the neighborhood level, mixed land use (Cerin et al., 2017), barrier-free design (Zhu et al., 2017), street connectivity (Kaczynski et al., 2014) need to be considered. However, most of these studies only explored the relationship between these factors and older adults' usage of community facilities. Studies providing a comprehensive understanding of associations among community facilities resources, older adults' usage, and well-being on established theories and frameworks are limited. In addition, these studies mainly paid attention to the utility of public facilities, neglecting the importance of persons. Sen (1979a, 1979b) proposed a new theoretical framework of welfare economics, named the "Capability Approach" (CA). The framework aims to address the shortcomings of insufficient understanding of people's capability to use public resources by linking welfare resources to functionings (being or doing) and achievement, where people can benefit from these resources, particularly people's well-being. Considering the functional diversity of community facility and its impact on older adults' life, the CA is suitable for exploring the relationship between older adults' usage of community facilities and well-being.

Based on the CA framework (Sen, 1995), the study defines the community facility as one type of resource. Older adults' mobility is an important capability to access the resources. Older adults' usage of and satisfaction with community facility is the functionings of the resources, and their neighborhood satisfaction and well-being are the achievements of using community facilities. It is hypothesized that older adults need a sufficient mobility level to support their access to community facilities. Their neighborhood satisfaction and well-being could be improved through the usage of and satisfaction with using community facilities. Both walking environment and public transport play an important role in older adults' usage of and satisfaction with community facilities, and improve their neighborhood satisfaction and well-being (Rossi et al., 2023). In addition, the built and social environments of the community and older adults' individual considerations are the conversion factors that older adults depend on to achieve usage of and satisfaction with community facilities, and achieve neighborhood satisfaction and well-being.

Considering the issues and research gaps discussed above, this study aims to develop a novel framework by applying and extending the CA to explore the associations among community facilities and older adults' neighborhood satisfaction and well-being in high-density urban environments. The study intends to address the following research objectives: (1) to examine the associations among community facility resources, older adults' usage, and their neighborhood satisfaction and well-being; (2) to explore the role of mobility as a capability that support older adults' usage of community facility; (3) to identify the potential conversion factors that affect older adult's usage of community facility, neighborhood satisfaction, and well-being.

2. Theoretical framework

2.1. Capability approach

Previous welfare economics mainly focused on providing resources or public goods. However, understanding people's benefits and well-being may not be sufficient because providing resources or public goods alone cannot ensure that people can transfer resources to actual doings and beings. The CA is primarily based on freedom and its close association with achievement and well-being (Sen, 1995). As the origins of the CA, Sen (1974, 1979a, 1979b) pointed out that the traditional economic models lack information on what activities people were able to undertake ("doings") and the kinds of persons people were able to be ("beings"), which is called capabilities by Sen.

The key concepts of the CA are resources, capabilities, and functionings or achievements. Resources, such as marketable goods and services, or goods and services from the non-market economy, have specific characteristics that may interest people (Sen, 1995). In this study, community facility is a type of resource provided by the government or private sectors that could support older adults' daily life. In addition, in Sen's term (ibid), the concept of functionings is "the various things a person may value doing or being." We separate the concepts to functionings and achievements. The functionings are older adults' use of community facilities and satisfaction with community facilities, which reflects what they may value doing. The achievements are neighborhood satisfaction and well-being, which are the values that older adults acquire from using community facilities. Fig. 1 shows the proposed conceptual framework based on the CA.

2.2. Mobility as capability

A person's capability is "the alternative combinations of functionings that are feasible for her to achieve (Sen, 1995)." We identify mobility as the capability variable that could that affect older adults' use of community facilities (Wang, Yung, Yu, & Tsou, 2022). Even we provide equal community facilities to different communities, older adults may still have distinct capabilities to access community facilities due to the differences of mobility, such as the walking environment and public transport. Mobility is also the key to achieving healthy aging, especially in marginalized urban regions (Van Hoven et al., 2012). The study in the Netherlands found that mobility in later life is not only about moving but also about experience and perception (van Hoven & Meijering, 2019). The mobility enhances older adults' ability to use their neighborhoods on their own terms. This study applies three variables, namely, walking environment, public transport, and out-of-home activity level, to analyze older adults' mobility to use community facilities.

The walking environment of the community is a critical mobility factor as older adults mainly engage in walking as part of their daily lives. It would affect older adults' experience in walking to the community facilities. The study in Brisbane, Australia found that a pleasant walk plays a vital role in people's easy access to community facilities in both high- and low-socioeconomic status (SES) suburbs (Wang, Brown, & Liu, 2015). A comparative study of Brisbane (Australia) and Zhongshan (China) also pointed out that having a pleasant walking experience is much more important to Chinese people than to people living in Western countries and is one of the strong predictors of perceived accessibility (Wang, Brown, Zhong, et al., 2015).

Public transport is also well documented to affect older adults' use of community facilities. Dony et al. (2015) indicated that the transportation facility and its location significantly affect the accessibility to community facilities in Mecklenburg. Public transport could encourage people to use the community facility exceeding their walking distance. Wan and Shen (2015) also identified access to community facilities through public transport as an important factor affecting people's use of parks in high-density cities based on interviews with 263 Hong Kong residents. In addition, older adults' out-of-home activity level could reflect their ability and willingness to move and use different community facilities (Kahlert & Ehrhardt, 2020). Burlando et al. (2016) developed an index of the perceived quality of public transport in Italy and found that improving public transport alone is not effective in improving the performance of public transport. Public transport is also essential to older adults' neighborhood satisfaction and well-being. Rossi et al. (2023) illustrated that older adults who feel satisfied with public transportation and their living neighborhoods may have higher levels of subjective well-being during the Covid-19 pandemic in Italy. A survey with 15,097 adults aged above 60 also found that frequently using

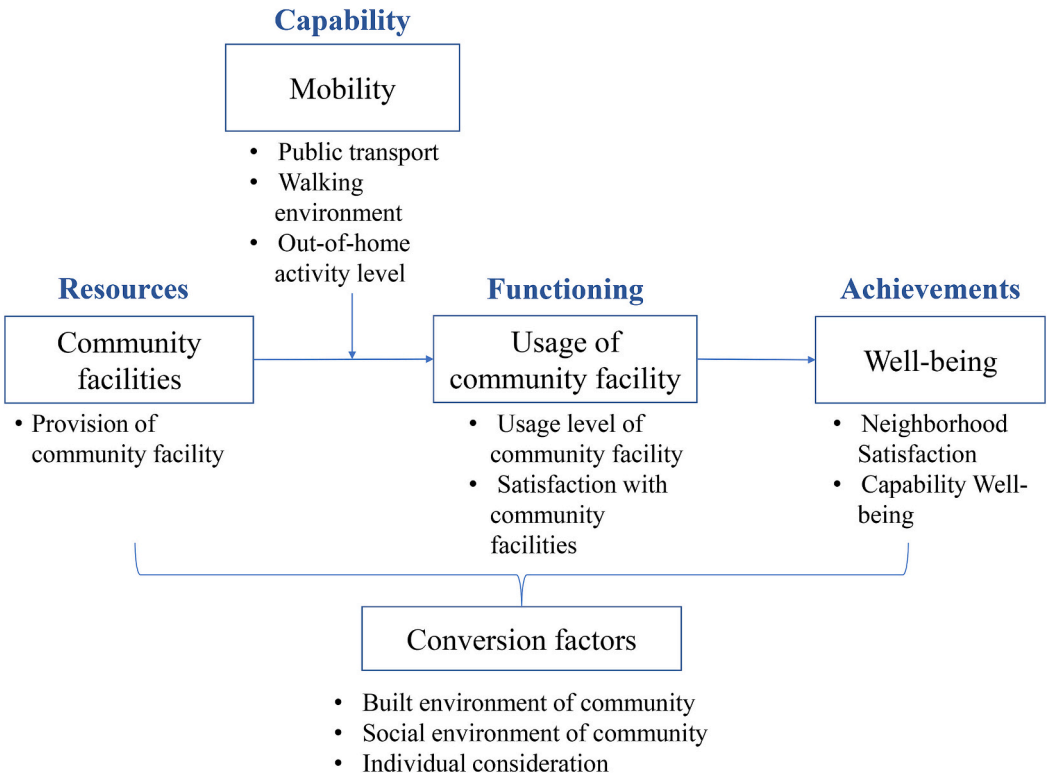

Fig. 1. Conceptual framework of the study based on capability approach.

public transport is positively associated with their psychological and self-perceived health (Crotti et al., 2021). The study suggested that using public transport service at least once a week could help to improve older adults' physical conditions.

2.3. Conversion factors: Community environment and individual considerations

Conversion factors are the factors that people depend on when achieving a certain doing or being based on their capability (Sen, 1995). Previous studies identified a series of conversion factors and mainly divided them into three categories (Egdell & McQuaid, 2016): built environment, social environment, and individual factors. Thus, this study also categorized the potential conversion factors into three types: built environment of community, social environment of community, and individual considerations.

The study identifies several built environment attributes from previous literatures that are significantly associated with community facility usage. Barrier-free design for older adults is one of the salient built environment attributes of urban green space identified in Hong Kong (Wan & Shen, 2015). The lack of cleanliness may also contribute to people's dissatisfaction with the use of public community facilities and reduces their willingness to visit community facilities based on interview with 116 people in Famagusta (Pasaogullari & Doratli, 2004). The study Hangzhou, China also advised that communities should provide shelters for individuals to protect them from the sun and rain, encouraging them to utilize community facilities even in adverse weather conditions based on the survey with 364 people (Zhang et al., 2013).

Among the social environment of community factors that influence the use of public community facilities, social interaction and enhancing people's sense of community were valued in Famagusta (Pasaogullari & Doratli, 2004). Interacting with others is one of the purposes that people visit community facilities.

Individual conditions and consideration were also essential to older adults' use of community facilities. Wang, Brown, and Liu (2015) found in Brisbane that unavailable leisure time may prevent people from accessing community facilities in low-SES suburban areas. Older people's health status could also affect their decisions to access community facilities based on survey with 1860 older people across Britain. Older people with or without mobility difficulty may have distinct attitudes toward environmental attributes. Sugiyama and Thompson (2008) discovered that older adults could have a highly active lifestyle through social participation and interaction activities in community facilities based on survey with 268 older people in UK.

2.4. Achievements: Neighborhood satisfaction and capability well-being

Neighborhood satisfaction is a variable to describe to what extent neighborhoods' physical and social environments could meet the expectations of local residents (Ciorici & Dantzler, 2019). Chapman and Lombard (2006) found that the availability of local facilities, such as recreational facilities, was essential to residents' neighborhood satisfaction in gated communities in United States. A previous study in Ghent also indicated that the density and perceived access to services and amenities is significantly associated with neighborhood satisfaction (Barnett et al., 2020). Furthermore, Permentier et al. (2011) pointed out that satisfaction with community facilities, such as shops and green spaces, would increase residents' satisfaction with the neighborhood based on interviews with 1095 people in Utrecht.

Capability well-being is a specific measurement of people's well-being based on Sen's CA. Capability well-being is described as a measurement that goes beyond health to assess whether the policy helps people to maintain independence, dignity, comfort, or social interaction (Al-Janabi et al., 2012). A specific version of the questionnaire, ICECAP-O, focused on older people, was first developed in 2006 (Grewal et al., 2006). This questionnaire contains five attributes: attachment, security, role, enjoyment, and control. The suitability of the ICECAP-O tool has been validated in previous studies (Hörder et al., 2016; van Leeuwen et al., 2015). However, most of these studies were conducted in Western countries, and very few were conducted in Eastern countries with

specific urban forms and cultures. Furthermore, few studies used this method to explore the relationship between older people's usage of community facilities and well-being.

3. Research methods

3.1. Study districts

This study selected two old districts in Hong Kong. Hong Kong is a typical high-density city with a high proportion of older adults and old buildings (Ling & Lee, 2019), showing the importance of tackling older adults' demands of community facilities and their ability of aging-in-place. In 2021, the proportion of older adults in Hong Kong is around 20 %, and is projected to increase to 30 % in Mid-2031 (Census and Statistics Department, 2023a). The two selected districts, Kwun Tong district and Sham Shui Po district, had a high population and proportion of older adults in 2021. The population of older adults in Kwun Tong district and Sham Shui Po district in 2021 are 147,741 and 87,935, respectively, while the proportion of older adults is 21.9 % and 20.4 %, respectively (Census and Statistics Department, 2023b). Both districts have relatively low socio-economic status, Kwun Tong district and Sham Shui Po district have the lowest and second lowest median monthly household income in 2023 (Census and Statistics Department, 2024). In addition, the two districts are old with undergoing urban renewal projects. Thus, both districts could reflect older adults' general usage pattern of community facilities who live in old districts in high-density environments.

3.2. Data collection

This study applied the questionnaire survey and spatial analysis methods to collect older adults' usage patterns and preferences for community facilities, mobility, and well-being. We selected six types of community facilities that were close to older adult's daily life in the study based on previous study (Wang, Yung, Yu, & Tsou, 2022).

The study used spatial analysis method to collect and calculate the objective data of provision of community facility, built environment and socio-economic status of the community. All the spatial analysis were performed at Tertiary Planning Unit (TPU) level. TPU is the smallest planning unit defined by Planning Department. It has been widely used in previous studies to define the boundary of community in Hong Kong (Cerin et al., 2016; Yao & Loo, 2016). Table 1 presents the list of variables calculated through spatial analysis and the related data source. The community facility distributions in two study districts are demonstrated in Fig. 2.

The study also applied questionnaire survey to collect older adults' usage patterns and satisfaction with community facilities, and well-being. The first part collected older adults' weekly visiting frequency and length of stay in six types of community facilities and out-of-home activity levels. The second part collected their perceived built and social environment of community, and individual consideration. The third part evaluated the walking environment and public transport of the community following He et al. (2020). The fourth part collected older adults' satisfaction levels with community facilities, neighborhood satisfaction, and capability well-being using the ICECAP-O tool. The last part of the questionnaire collected older adults' demographic profiles, such as age, gender, and social network. The variables collected and calculated from questionnaire survey is illustrated in Table 2.

The questionnaire survey was conducted from April 2022 to July 2023, and a total of 509 valid samples were included in the study, among which 261 were from the Kwun Tong district and 248 from the Sham Shui Po district. The profiles of respondents are provided in Appendix A. The survey was conducted by face-to-face interviews using a combination of stratified and convenient sampling method. Older people in elderly centre, open spaces, markets or other activity spaces were randomly invited to participate in the questionnaire survey. One senior researcher and 6 student helpers were responsible for conducting the survey. The training was given to the students before the survey. The definition of six types of community facilities and the examples in older adults' neighborhoods were introduced to the interviewees before the questionnaire survey.

Table 1
List of variables calculated through spatial analysis.

Variables	Items	Scale	Source
Ratio of residents to facility	Commercial facility, community service facility, cultural facility, municipal facility, leisure facility, religious facility	Ratio of older adults to per community facility	GeoCommunity Database 2020 from Lands Department
Land use diversity	Diversity types of land use in community	Number of land use types	Land Utilization in Hong Kong 2020
Elderly proportion of neighborhood	Residential density of TPU that elderly people live in	Number of older adults/ m^2	2016 Hong Kong Population By-census
Socio-economic status of neighborhood	Median monthly domestic household income of TPU that older adults live in	HK$	2016 Hong Kong Population By-census

3.3. Data analysis

Structural equation modeling (SEM) was adopted to analyze the complex relationships between community facility resources, mobility, objective and subjective conversion factors, and achievements (neighborhood satisfaction and well-being). SEM is an extension of several multivariate techniques, including factor analysis, multiple regression analysis, and path model analysis. It is a useful statistical tool for exploring complex relationships based on established theories (Hair Jr et al., 2010).

In this study, three SEM models were built. The first model aimed to explore the role of capability factors (walking environment, public transport, and out-of-home activity). The second model focused on the effect of perceived conversion factors (perceived built and social environment of community, and individual consideration). The third model examined the impact of objective conversion factors. Appendix B1 and B2 show the reliability and construct validity of the latent variables, and the goodness-of-fit of the models, respectively.

4. Results

4.1. Associations among community facilities, capability variables, and achievements

The result of the structural equation model of associations among community facilities, capability variables, and achievements is presented in Fig. 3 and Appendix C1. The ratio of residents to facility is negatively associated with older adults' use of community facilities ($p < 0.001$). Sufficient provision of community facility may encourage older adults' usage of community facility. In addition, there is no significant relationship between the use of community facilities and satisfaction with using community facilities. Older people's satisfaction level with using community facilities is positively associated with their neighborhood satisfaction ($p < 0.001$) and capability well-being ($p < 0.001$).

For three capability variables, walking environment ($p < 0.05$) and out-of-home activity ($p < 0.001$) positively affect older adults' use of community facilities, whereas the effect of public transport is not significant. In addition, walking environment ($p < 0.001$) and public transport ($p < 0.05$) are positively associated with older adults' satisfaction with community facilities. Better walking environments could

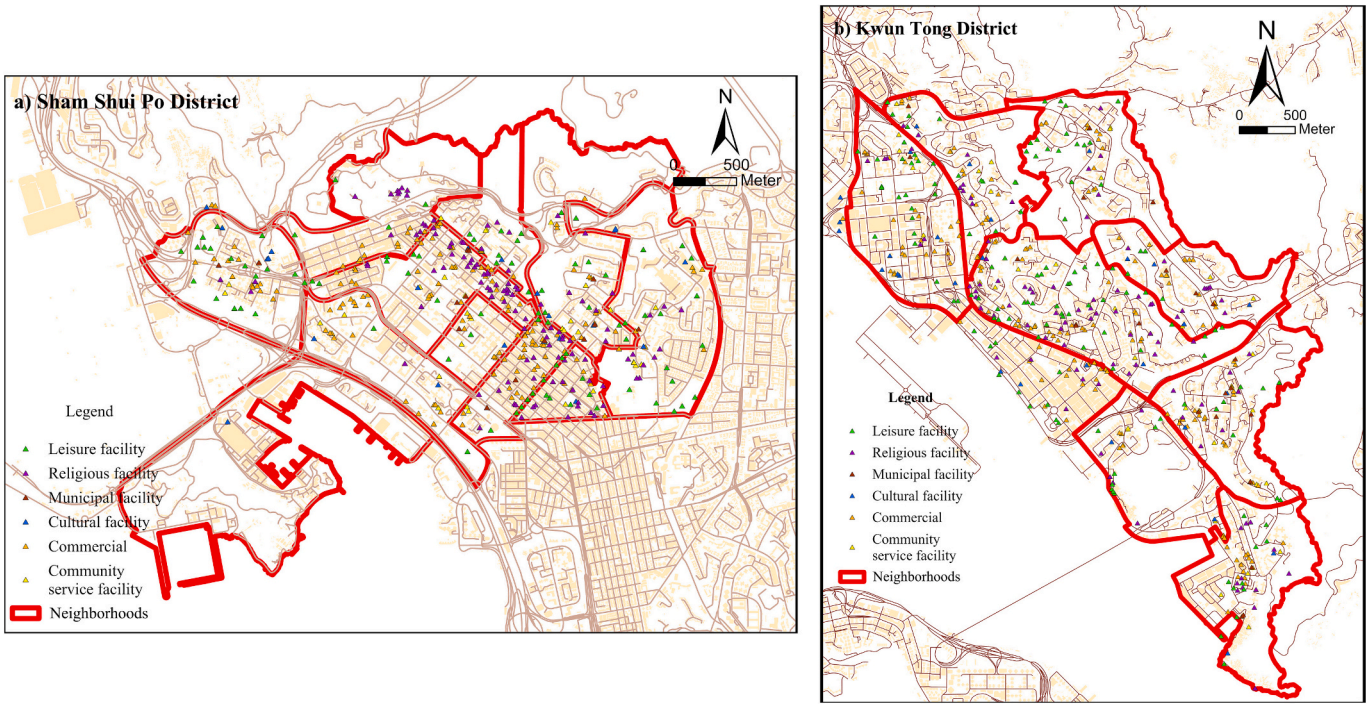

Fig. 2. Distributions of community facilities in two study districts.

increase older adults' usage of and satisfaction with community facilities, while improving public transport services may only boost satisfaction levels.

4.2. Associations among community facilities, perceived conversion factors, and achievements

The result of the structural equation model of associations among community facilities, perceived conversion factors, and achievements is demonstrated in Fig. 4 and Appendix C2. It was observed that the perceived built environment of the community is positively associated with older adults' use of community facilities ($p < 0.05$) and satisfaction with community facility ($p < 0.001$). Neighborhoods that prioritize barrier-free design, all-weather accessibility, cleanliness, and aesthetics may increase the usage and satisfaction with community facilities for older adults.

Perceived individual consideration ($p < 0.01$) is also positively associated with older adults' satisfaction with community facilities. Older adults who have ample leisure time, an active lifestyle and maintain good health may feel more satisfied with community facilities.

The perceived built environment of the community is also positively associated with older adults' neighborhood satisfaction level ($p < 0.001$), while the perceived individual consideration is positively correlated with both neighborhood satisfaction level ($p < 0.001$) and capability well-being ($p < 0.001$). It is illustrated that the perceived social environment of the community is not a significant perceived conversion factor in this study.

4.3. Relationship among community facilities, objective conversion factors, and achievements

The result of the structural equation model of the relationship among community facilities, objective conversion factors, and achievements is illustrated in Fig. 5 and Appendix C3. The elderly proportion of the neighborhood ($p < 0.001$), socio-economic status of the neighborhood ($p < 0.01$), age ($p < 0.0001$), and gender ($p < 0.01$) are positively associated with older adults' use of the community. Older adults living in a neighborhood with a high elderly proportion, high socio-economic status, or who are older, or female may have a high usage level of community facilities. The intersection density ($p < 0.01$) is negatively associated with older adults' usage of community facilities, which means older adults living in a neighborhood with high intersection density may have a low usage level of community facilities.

Age ($p < 0.01$) has a positive effect on older adults' satisfaction level with using community facilities. Land use diversity ($p < 0.01$) is negatively associated with older adults' satisfaction level with using community facility. Older adults living in neighborhoods with diverse land use types may feel less satisfied with community facilities.

It was pointed out that social network ($p < 0.05$) and age ($p < 0.01$) are positively associated with older adults' neighborhood satisfaction. Older adults who are older or who have more trusted friends may have higher neighborhood satisfaction levels. It was also founded the elderly proportion of neighborhood ($p < 0.05$), age ($p < 0.05$), and social network ($p < 0.001$) are positively related to older adults' capability well-being, while the population density ($p < 0.05$) is negatively related to older adults' capability well-being.

5. Discussion

5.1. Community facility resources, usage, and well-being

This study explores the mechanism of the effect of providing community facility resources on increasing older adults' neighborhood satisfaction and well-being by applying Capability Approach framework. The study provides the evidence that although providing sufficient community facilities may increase older adults' usage of community facilities, it does not directly increase older adults' neighborhood satisfaction and well-being. Increasing older adults' satisfaction level with community facilities may be more important to promote satisfaction and well-being. The findings prove the hypothesis of CA that having equal resources does not necessarily result in the same capabilities nor the same well-being (Sen, 1995).

The usage level of community facility and satisfaction with community facility is regarded as functionings of community facility

Table 2
List of variables calculated through questionnaire survey.

Variables	Measurements	Scales	Analysis
Use of community facility	The time older people spend in using all six types of community facilities per week	Hours	Frequency of visiting each type of community facility * length of stay in each type of community facility per week (by questionnaire survey)
Satisfaction with community facility	To what extent you feel satisfied with using each type of community facility in the neighborhood?	1 (very dissatisfied) to 5 (very satisfied)	Average of satisfaction level with using six types of community facilities
Capability well-being	Love and Friendship Thinking about the future Doing things that make you feel valued Enjoyment and pleasure Independence	1 (lowest level) to 4 (highest level)	confirmatory factor analysis
Neighborhood satisfaction	Overall, to what extent you feel satisfied with your neighborhood?	1 (very dissatisfied) to 5 (very satisfied)	–
Walking environment	Convenient to community facilities by walking Sense of security Wayfinding signage Convenience of footbridges/ subways Crossing time Crossing facilities Pavement surface Continuity of the walking route Directness of the walking route	1 (strongly disagree) to 5 (strongly agree)	confirmatory factor analysis
Public transport	Convenient to community facilities by public transport Proximity from home to public transport Directness of public transport route Availability of public transport Cost of public transport	1 (strongly disagree) to 5 (strongly agree)	confirmatory factor analysis
Out-of-home activity	In the past week, how much time have you spent doing activities outside your home?	1: <1 h 2: 1–2 h 3: 2–3 h 4: 3–4 h 5: 4–5 h 6: >5 h	–
Perceived built environment of community	My neighborhood has a good barrier-free design. My neighborhood is very clean. My neighborhood has good design so I can use community facilities in bad weather conditions. My neighborhood is very beautiful.	1 (strongly disagree) to 5 (strongly agree)	confirmatory factor analysis
Perceived social environment of community	Using community facility provide the opportunity to participate in group activities. Using community facility provide the opportunity for social interact with others.	1 (strongly disagree) to 5 (strongly agree)	confirmatory factor analysis
Perceived individual consideration	I have adequate leisure time to visit community facilities. I have an active lifestyle. I'm healthy enough to visit community facilities.	1 (strongly disagree) to 5 (strongly agree)	confirmatory factor analysis
Age	Age of the older people	1: 55–60 2: 61–70 3: 71–80 4: 81–90 5: >90	–
Gender	Gender of the older people	1: Male 2: Female	–
Social network	How many trusted friends do you have?	0:0 friend 1:1 friend 2:2 friends 3:3 friends 4:4 friends 5:5 friends 6:>6 friends	–

resources, which is defined as something that people successfully doing (Sen, 1995). The findings show that satisfaction with community facilities is the bridge linking community facility resources and older adults' achievement (neighborhood satisfaction and well-being). The study emphasizes the importance of increasing older adults' satisfaction level with community facilities through planning strategies. Traditional planning strategies that focus on quantity and usage level of community facilities was inadequate to improve older adults' well-being. This study also innovatively proves that satisfaction with community facilities could contribute to older adults' capability well-being. Capability well-being was developed to evaluate individuals' well-being based on what they can "do" and "be" in their life (Al-Janabi et al., 2012). It is founded that higher satisfaction level with community facilities may help older adults maintain independence, dignity, comfort, and social interaction in the community. The reason may be that using community facilities could help to improve older adults' physical health (Koohsari et al., 2015), maintain social networks in the neighborhood (Mimi et al., 2012), and realize their own value (Ho, 2017). These may help older adults to develop their capabilities to do or to be what they want in their daily life, which promotes their capability well-being.

5.2. *Mobility as the capability for older adults' usage of community facilities*

Capability is described as people's real ability to achieve functionings (Robeyns, 2005). Ryan et al. (2015, 2019) pointed out that understanding older adults' mobility as a capability is important under CA. The study illustrates that walking environment and out-of-home activity level are associated with older adults' usage level of community facilities. In addition, walking environment and public transport are associated with satisfaction levels with community facilities. Thus, walking environment and public transport are essential capabilities to promote older adults' neighborhood satisfaction and well-being through using community facilities.

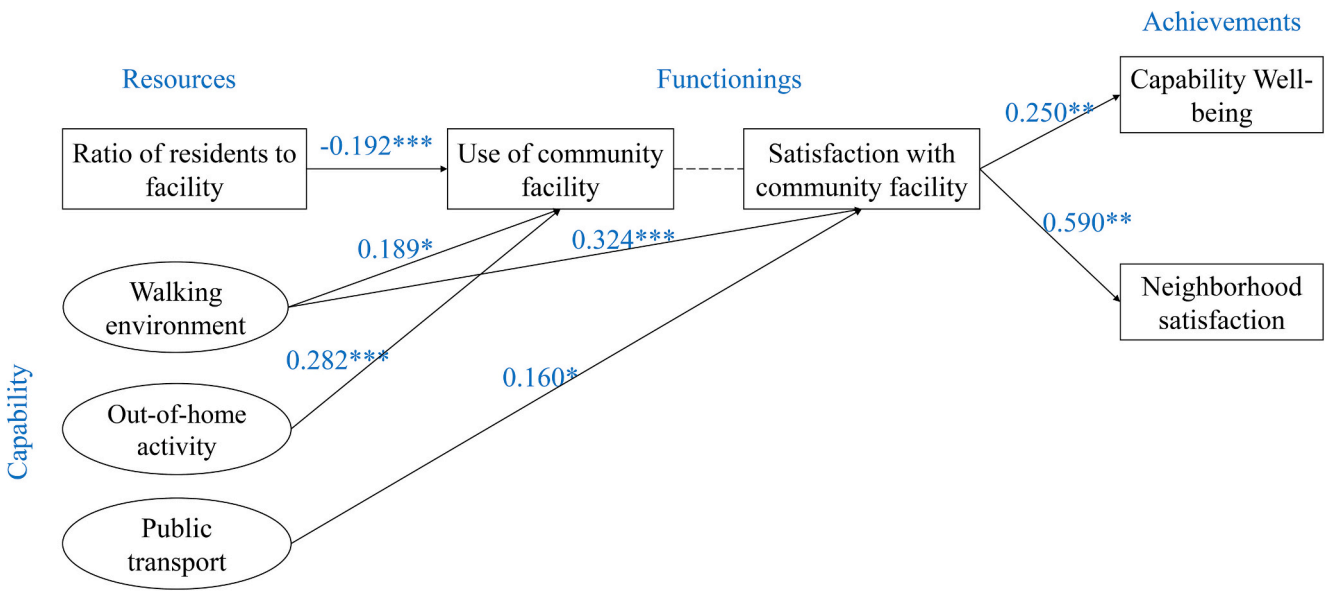

Fig. 3. Path diagram of the main constructs with standardized regression weights of capability variable model.
Note: ***$p \leq 0.001$, **$p \leq 0.01$, ***$p \leq 0.05$.

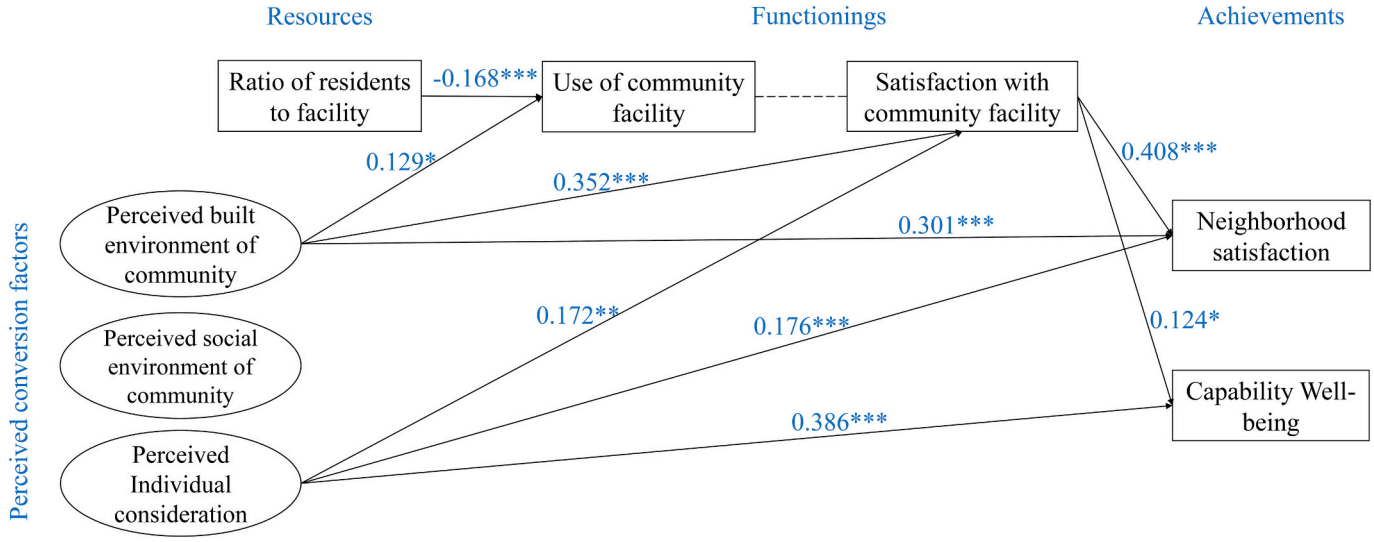

Fig. 4. Path diagram of the main constructs with standardized regression weights of the perceived conversion factors model.
Note: ***$p \leq 0.001$, **$p \leq 0.01$, ***p ≤ 0.05.

Walking environment is an essential element of older adults' mobility to support their use of community facilities in high-density cities. In high-density cities, community facilities are usually distributed in high-dense urban areas that are close to housing estates (You, 2022). Thus, considering its compact urban form, walking has become a common means of transport for older adults to visit community facilities. Our findings are in line with other scholars' studies that a walkable environment in the neighborhood could support older adults' visits to community facilities as it could increase accessibility to community facilities (Cerin et al., 2013; Loo & Lam, 2012). It is indicated that if planners could provide a walkable environment, it may increase older adults' access to community facilities. It could also make older adults feel comfortable when walking to community facilities, and may increase their satisfaction with using community facilities, and promote their well-being.

Public transportation may not be significantly associated with older adults' usage of community facilities. Although our finding differs from the previous finding in Sweden (Ryan et al., 2015), it may be because public transport is not a common choice for older adults to visit community facilities in high-density cities. Older adults in high-density cities in Asia usually prefer to conduct their daily activities within walking distance. However, the study still found that sufficient public transportation services may increase older adults' satisfaction level with community facilities. The reason may be that public transport could help older adults access community facilities that exceed their walking distance (Dony et al., 2015). It provides transportation choices for older adults to look for alternatives when they are unsatisfied with the community facility near their homes.

Out-of-home activity, also defined as out-of-home mobility (Kahlert & Ehrhardt, 2020), describes the older adults' ability to participate in out-of-home activities for longer periods. Out-of-home activity may be affected by a variety of factors, such as older adults' health status (Carney & Kandt, 2022), social environment (Herbolsheimer et al., 2018), personal attitudes (Kizony et al., 2020), or personal

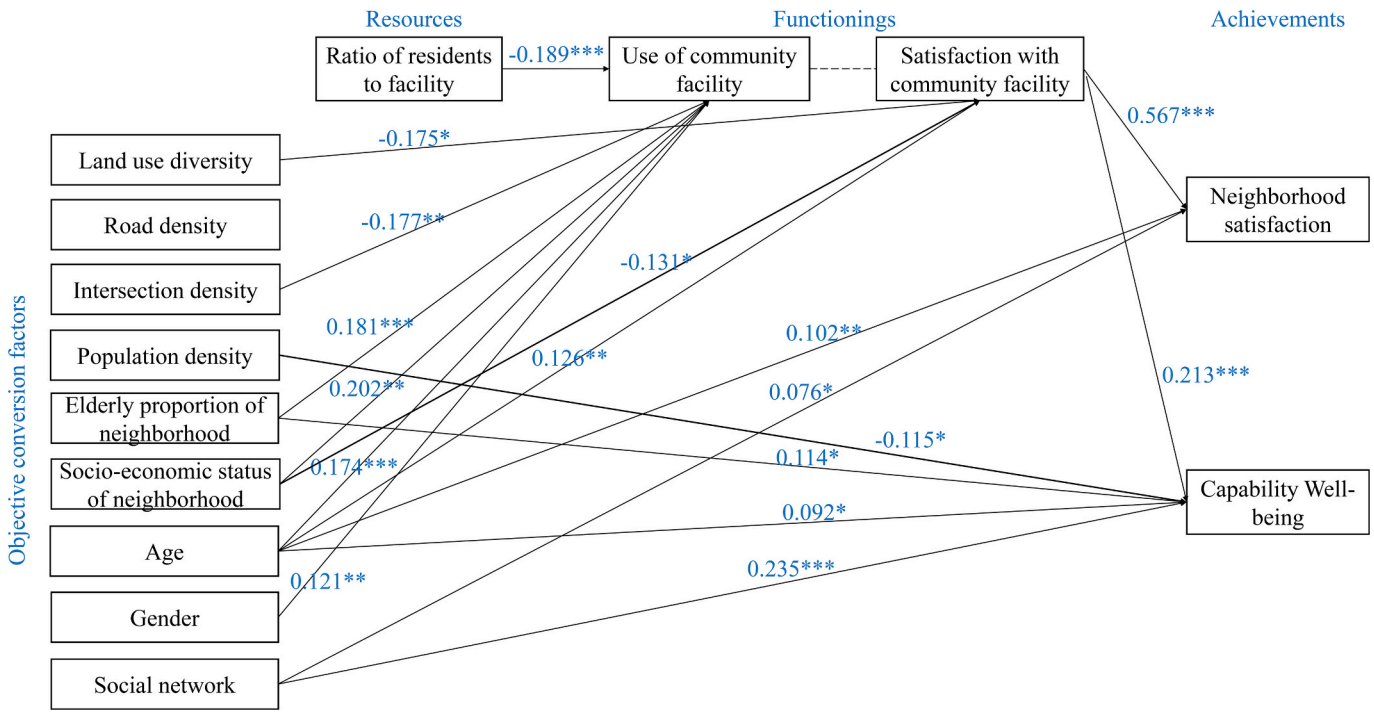

Fig. 5. Path diagram of the main constructs with standardized regression weights of objective conversion factors model.
Note: ***p ≤ 0.001, **p ≤ 0.01, ***p ≤ 0. 05.

characteristics (Feng et al., 2020). A high level of out-of-home activity usually means that older adults have a high level of capability to participate in activities out of their homes, which may result in a high usage level of community facilities. Furthermore, this high level of out-of-home activity may reflect that older adults may have personal conditions and a positive attitude toward participating in an out-of-home activity, which could also provide support to their usage of community facilities.

5.3. *Perceived built and social environment and individual factors as conversion factors*

Among the three conversion factors, the perceived built environment could affect older adults' use of the community, satisfaction with community facilities, and neighborhood satisfaction simultaneously. It emphasizes the importance of the perceived built environment as a conversion factor (Hvinden & Halvorsen, 2018). Older adults' perceived built environment attributes in this study include barrier-free design in the community, cleanliness of the community, design for all weather conditions, and aesthetics of the community. The barrier-free design could provide support to older adults with disability so that they can easily visit community facilities (Clarke & Nieuwenhuijsen, 2009). Cleanliness of the community may make older adults feel satisfied with the community environment. It could increase their willingness to leave home and visit community facilities (Pasaogullari & Doratli, 2004). The design for all weather conditions could make older adults visit community facilities even in bad weather condition (Wan & Shen, 2015). It ensures that older adults could still have their daily activities in community facilities in bad weather conditions, particularly for leisure facilities. In addition, living in a neighborhood with high aesthetic quality may make older adults feel comfortable and more willing to leave home. It may increase their possibilities to use community facilities.

Older adults' perceived individual considerations is found that positively related to their satisfaction with community facilities, neighborhood satisfaction, and well-being. The findings prove the theoretical claim of the CA that human diversity is vital to understand people's capabilities and well-being (Terzi, 2010). Older adults with different personal conditions may have different abilities to convert community facilities to well-being. Available leisure time is the precondition for older adults to participate in different types of activities (Reichert et al., 2007). Older adults have inadequate available leisure time may not have opportunities to use community facilities frequently. Older adults' perceived health status is also a precondition for older adults to visit community facilities (Aspinall et al., 2010; Jorgensen & Anthopoulou, 2007). Older adults who are unhealthy may be difficult to visit community facilities frequently. In addition, older adults who have an active lifestyle may have a high possibility to engage in physical or social activities in community facilities (Sugiyama & Thompson, 2008). It could help older adults to convert visiting community facilities to a high level of well-being.

The study does not identify any significant relationship among older adults' perceived social environment of the community, their usage of community facilities and well-being. The finding is not in line with previous studies, which emphasized the importance of social environments (Pasaogullari & Doratli, 2004). Older adults may treat visiting these community facilities as a part of their daily life in the context of high-density urban old districts; thus, the social environment may not directly correlate with their use of community facilities (Wang et al., 2023).

5.4. *Objective neighborhood and personal attributes as conversion factors*

Elderly proportion and socio-economic status of neighborhood, intersection density of neighborhood, age, and gender are significantly associated with older adults' usage of community facilities. Meanwhile, land use diversity and age are significantly related to older adults' satisfaction with community facilities.

The study found that land use diversity is negatively related to older adults' satisfaction with community facilities, which may be inconsistent with planners' common sense. Previous studies also found that in some unique urban contexts, land use mix may negatively contribute to citizens' neighborhood satisfaction (Kweon et al., 2010; Yang, 2008). A

possible explanation for this study is that some industrial areas are usually located in these urban old districts. A high level of land use diversity means that the neighborhoods may contain these old industrial buildings or areas. The industrial areas may worsen the neighborhood environment and decrease older adults' satisfaction with community facilities. Intersection density is also negatively associated with older adults' usage level of community facilities. Although high intersection density is seen as a strong predictor of high pedestrian volume (Chen et al., 2022), it can also lead to long crossing times, which may be inconvenient for older adults. As a result, they may feel unsatisfied with the walking environment regarding crossing experiences and prefer not to visit community facilities frequently.

The findings illustrate that older adults living in a neighborhood with a high elderly proportion may have a high level of usage of community facilities and capability well-being. A neighborhood with a high elderly proportion may provide opportunities for older adults to develop and maintain social connections and networks with other older adults (Burt & Atkinson, 2012; Crowe, 2010). The social networks could promote older adults' well-being and help them maintain aging-in-place. We also indicate that older adults living in a neighborhood with high socio-economic status may also have a high usage level of community facilities. Those older adults may have additional resources and available leisure time to be engaged in diverse activities. Thus, they may use community facilities more frequently than older adults living in low socio-economic neighborhoods. In addition, older adults living in a neighborhood with higher population density may have lower capability well-being level. In a high-density urban old district, high population density may result in crowded living environments, which have been proved as a reason for high rates of physical and mental health issues (Lepore, 2012).

The study found that the age and gender of older adults are also associated with the usage level of or satisfaction level with community facilities. It is indicated that older adults with varying personal characteristics may have differing abilities to use community facilities. It may also result in different neighborhood satisfaction and well-being levels. The finding supports the claim of the CA that different people may have different capabilities to resource them to well-being (Robeyns, 2021). Recognizing human diversity is essential to understand older adults' later life to encourage aging-in-place (Gopinath, 2018).

The findings illustrate that older adults' social network are not significantly associated with older adults' use of community facility. However, a strong social network could increase older adults' neighborhood satisfaction and capability well-being. Strong social network (many trusted friends) may bring the benefits, such as additional social trust, less stress, and additional social support (Van der Horst & Coffé, 2012). Thus, it could result in a high level of well-being for older adults, which aligns with the previous study (Anderson & Fowers, 2020).

5.5. Planning and policy implications

The point out that although the provision of community facilities may encourage older adults' usage of community facilities, it is insufficient to promote older adults' neighborhood satisfaction and well-being. It is satisfaction levels with community facilities that are positively associated with older adults' neighborhood satisfaction and well-being. Thus, planners should prioritize planning issues that increase older adults' satisfaction with community facilities, not just the quantity of community facilities.

From the capability perspective, planners should provide walkable environments and sufficient public transport services. It could help older adults access community facilities easily and comfortably. A walkable environment could increase older adults' usage level of and satisfaction level with community facilities. Although the study did not investigate the effects of different attributes of walking environments separately, those attributes may still provide general principles for planners. The attributes include sense of security, wayfinding signage, convenience of footbridges/subways, crossing time, crossing facilities, pavement surface, continuity of the walking route, directness of the walking route and convenience to community facilities by walking. The planners may also refer to previous literature regarding principles of walkable environments and neighborhoods (Leyden et al., 2023).

Providing sufficient public transport services may increase older adults' satisfaction with community facilities. Similar to the suggestions regarding walking environment, the study include the following attributes in the study: proximity from home to public transport, directness of public transport route, availability of public transport, cost of public transport and convenience to community facilities by public transport. Planners may use these attributes as reference for community facility planning. For example, distributing the community close to public transport stations.

In terms of the conversion factors, the study also identified several planning issues for planners' reference. It contains older adults' perceived built environment (barrier-free design, cleanliness, design for all weather conditions, aesthetics) and land use diversity. Planners should provide barrier-free design in the surrounding community of facilities. Planners could also try to provide covered corridors in the main streets so that older adults may visit community facilities even in bad weather conditions. It is also suggested that planners may pay attention to aesthetics of the community to make older adults feel comfortable. Regarding land use diversity, this study found that industrial area may be the potential reason that makes land use diversity negatively associated with older adults' satisfaction with community facilities. Planners could try to relocate industrial areas to the edge area of the city and ensure that the community facilities are located far from these areas.

Finally, the government could partner with nongovernment organizations to promote healthy and active lifestyle programs to encourage older adults to participate in out-of-home activities to tackle their individual consideration issues. In addition, the government should provide adequate retirement protection so that older adults could have additional leisure time to use community facilities for diverse purposes and activities. The government should also take action to promote social programs to help older adults maintain social networks in the community.

6. Limitations and future studies

The study selected Kwun Tong district and Sham Shui Po district as study districts due to their special socio-economic status and spatial configuration. The findings of this study may not be directly applicable to other districts. Future studies can expand the study to other urban old districts to explore whether the framework and pathway identified from this study are also reasonable. In addition, the assessment of social environment is based on the questionnaire survey method, which relies on older people's subjective evaluation. The social environment may not be easy perceived by older people, especially compared to the built environment. The future study may involve more direct way to assess the relationship between social environment and older people's usage of community facilities and well-being. The evaluation of the walking environment and public transport also relies on the questionnaire survey method, which may be subject to retrospective biases. Future studies might employ objective evaluation methods, such as street view image analysis, to assess the quality of walking environment and public transport.

7. Conclusion

The main contribution of the study is to extend and apply the Capability Approach to understand the mechanism of how planning of community facility may promote older adults' well-being, considering their capabilities to access community facilities and conversion factors of the surrounding community and individual characteristics. The study

generates knowledge of the paths on how the provision of community facilities may promote older adults' well-being by increasing their satisfaction with community facilities. The study also explores the role of capability (mobility) and conversion factors (built, and social environment of community and individual consideration) in facilitating this process. The study involves capability well-being to assess older adults' well-being beyond health. Furthermore, the study separates the concepts of functionings and achievements and proposes that the achievements should be promoted through the capability to not only use resources but also achieve the functionings.

The study proves that only providing community facility resources is not adequate to increase older adults' well-being. Planners should pay attention to the planning issues that could increase older adults' satisfaction with community facilities. It identifies the walking environment and public transport as key mobility elements that support older adults' usage of community facilities. Perceived built environment of community, land use diversity and elderly proportion of neighborhood may affect older adults' neighborhood satisfaction and well-being through affecting their usage of community facility resources. In addition, older adults' individual consideration, age and gender are associated with older adults' usage and satisfaction with community facilities. Thus, human diversity should be recognized when understanding older adults' use of community facilities.

From the practical perspective, planning of community facilities should not only focus on the quantity of facilities, but also to increase older adults' satisfaction level with community facilities. Planners should provide walkable environments and sufficient public transport services to support older adults access community facilities. It would be helpful to introduce the concept of "15 minutes city" to improve older adults' neighborhood satisfaction and well-being by distribution community facilities within older adults' neighborhoods and ensure they could access to the facilities within 15 min by walking or public transport. In addition, the built environment of the community, including a barrier-free design, cleanliness, and design for all weather conditions and aesthetics, should also be paid attention to build an age-friendly community and enhance older adults' ability to achieve aging-in-place.

CRediT authorship contribution statement

Siqiang Wang: Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Esther Hiu Kwan Yung:** Writing – review & editing, Validation, Supervision, Resources, Project administration, Funding acquisition, Conceptualization. **Peiheng Yu:** Visualization, Investigation, Formal analysis, Data curation. **Jin Yeu Tsou:** Writing – review & editing, Validation, Supervision, Resources, Methodology, Conceptualization. **Yifan Yu:** Writing – review & editing, Validation, Supervision, Resources, Methodology, Conceptualization.

Ethical approval

The research was approved by the Human Subjects Ethics Subcommittee of The Hong Kong Polytechnic University (HSEARS20180122009) on 23 January 2018.

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Descriptive statistics of respondents' demographics and satisfaction level with community facilities

	Participants of the survey (N=509)	Hong Kong (N=2696098)
Socio-economic demographics		
Age		
55-60	32	752759
	6.3%	27.9%
61-70	190	1066792
	37.3%	39.6%
71-80	180	516974
	35.4%	19.2%
81-90	101	276295
	19.8%	10.2%
>90	6	83278
	1.2%	3.09%
Gender		
Male	205	1267366
	40.3%	47.0%
Female	304	1428732
	59.7%	53.0%
Education level		
Primary school or lower	303	1058736
	59.5%	39.3%
High school	168	1231796
	33.0%	45.7%
Post-secondary	31	405566
	6.1%	15.0%

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	Participants of the survey (N=509)	Hong Kong (N=2696098)
Graduate school or higher	7 1.4%	
Satisfaction level with community facilities and neighborhood		
Satisfaction with community facility		N.A.
Commercial facility		
Very dissatisfied	3 0.6%	
Dissatisfied	19 3.7%	
Fair	130 25.5%	
Satisfied	304 59.7%	
Very satisfied	42 8.3%	
Not used	11 2.2%	
Community service facility		
Very dissatisfied	4 0.8%	
Dissatisfied	12 2.4%	
Fair	157 30.8%	
Satisfied	249 48.9%	
Very satisfied	26 5.1%	
Not used	61 12.0%	
Cultural facility		
Very dissatisfied	3 0.6%	
Dissatisfied	19 3.7%	
Fair	181 35.6%	
Satisfied	199 39.1%	
Very satisfied	14 2.8%	
Not used	93 18.3%	
Municipal facility		
Very dissatisfied	8 1.6%	
Dissatisfied	36 7.1%	
Fair	146 28.7%	
Satisfied	262 51.5%	
Very satisfied	29 5.7%	
Not used	28 5.5%	
Leisure facility		
Very dissatisfied	2 0.4%	
Dissatisfied	20 3.9%	
Fair	131 25.7%	
Satisfied	278 54.6%	
Very satisfied	52 10.2%	
Not used	26 5.1%	
Religious facility		
Very dissatisfied	1 0.2%	
Dissatisfied	6	

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	Participants of the survey (N=509)	Hong Kong (N=2696098)
	1.2%	
Fair	132	
	25.9%	
Satisfied	156	
	30.6%	
Very satisfied	33	
	6.5%	
Not used	181	
	35.6%	
Neighborhood satisfaction		
Very dissatisfied	0	
	0.0%	
Dissatisfied	8	
	1.6%	
Fair	120	
	23.6%	
Satisfied	322	
	63.3%	
Very satisfied	59	
	11.6%	

Appendix B1

Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) for latent constructs.

Latent constructs	Items	Cronbach's alpha	CR	AVE
Built environment	Barrier-free design	0.806	0.807	0.512
	Cleanliness			
	Design for all weather conditions			
	Aesthetics			
Social environment	Social cohesion/group activity	0.774	0.789	0.656
	Social interaction			
Individual factors	Available leisure time	0.761	0.766	0.523
	Active lifestyle			
	Health status			
Walking environment	Convenient to community facilities by walking	0.904	0.906	0.519
	Sense of security			
	Wayfinding signage			
	Convenience of footbridges/subways			
	Crossing time			
	Crossing facilities			
	Pavement surface			
	Continuity of the walking route			
	Directness of the walking route			
Public transport	Convenient to community facilities by public transport	0.904	0.907	0.663
	Proximity from home to public transport			
	Directness of public transport route			
	Availability of public transport			
	Cost of public transport			

Appendix B2

Values of model fit indexes for three path analysis models.

	Model: capability factors	Model: perceived conversion factors	Model: objective conversion factors	Acceptable values
Chi-square	770.483	128.949	9.806	
df	165	63	6	
X^2/df	4.67	2.047	1.634	<5.0 (Wheaton, 1987)
GFI	0.869	0.964	0.997	≥0.90 (Hair et al., 2006)
AGFI	0.833	0.941	0.951	≥0.80 (Marsh et al., 1988)
CFI	0.884	0.968	0.998	≥0.80 (Doll et al., 1994)
SRMR	0.0944	0.0407	0.0119	≤0.10 (Kline, 2005)
RMSEA	0.085	0.045	0.035	<0.08 (Hair et al., 2006)

Appendix C1

Structural equation model regressing well-being on community facility and mobility.

			Standardized estimate	Estimate	S.E.	C.R.	P
Mobility and use of community facility							
Use of community facility	<––	Ratio of residents to facility	−0.192	−0.027	0.006	−4.635	***
Use of community facility	<––	walking environment	0.189	4.445	1.902	2.337	**0.019***
Use of community facility	<––	public transport	−0.155	−3.12	1.625	−1.919	0.055
Use of community facility	<––	Out-of-home activity	0.282	2.894	0.425	6.802	***
Mobility and satisfaction with community facility							
Satisfaction with community facility	<––	use of community facility	0.069	0.003	0.002	1.651	0.099
Satisfaction with community facility	<––	walking environment	0.324	0.303	0.073	4.156	***
Satisfaction with community facility	<––	public transport	0.160	0.128	0.062	2.064	**0.039***
Satisfaction with community facility	<––	Out-of-home activity	0.012	0.005	0.017	0.3	0.764
Satisfaction with community facility, neighborhood satisfaction and capability well-being							
Capability Well-being	<––	Satisfaction with community facility	0.250	0.058	0.01	5.824	***
Neighborhood satisfaction	<––	Satisfaction with community facility	0.590	0.666	0.04	16.475	***

Note:

* Relationship is significant at the 0.05 level.

*** Relationship is significant at the 0.001 level.

Appendix C2

Structural equation model regressing well-being on community facility and perceived conversion factors.

			Standardized estimate	Estimate	S.E.	C.R.	P
Impact on use of community facility							
Use of community facility	<––	Ratio of residents to facility	−0.168	−0.023	0.006	−3.898	***
Use of community facility	<––	Perceived built environment of community	0.129	2.742	1.32	2.077	**0.038***
Use of community facility	<––	Perceived social environment of community	0.067	1.245	1.143	1.089	0.276
Use of community facility	<––	Perceived individual consideration	0.007	0.145	1.299	0.112	0.911
Impact on satisfaction with community facility							
Satisfaction with community facility	<––	Use of community facility	−0.010	0	0.002	−0.249	0.803
Satisfaction with community facility	<––	Perceived built environment of community	0.352	0.3	0.05	6.023	***
Satisfaction with community facility		Perceived social environment of community	0.107	0.079	0.042	1.885	0.059
Satisfaction with community facility		Perceived individual consideration	0.172	0.151	0.048	3.154	**0.002****
Impact on neighborhood satisfaction							
Neighborhood satisfaction	<––	Satisfaction with community facility	0.408	0.46	0.046	10.043	***
Neighborhood satisfaction	<––	Perceived built environment of community	0.301	0.289	0.051	5.645	***
Neighborhood satisfaction	<––	Perceived social environment of community	−0.073	−0.061	0.041	−1.5	0.134
Neighborhood satisfaction	<––	Perceived individual consideration	0.176	0.175	0.047	3.691	***
Impact on capability well-being							
Capability Well-being	<––	Satisfaction with community facility	0.124	0.029	0.011	2.515	**0.012***
Capability Well-being	<––	Perceived built environment of community	−0.040	−0.008	0.012	−0.64	0.522
Capability Well-being	<––	Perceived social environment of community	0.008	0.001	0.01	0.136	0.892
Capability Well-being	<––	Perceived individual consideration	0.386	0.079	0.012	6.394	***

Note:

* Relationship is significant at the 0.05 level.

** Relationship is significant at the 0.01 level.

*** Relationship is significant at the 0.001 level.

Appendix C3

Structural equation model regressing well-being on community facility and objective conversion factors.

			Standardized estimate	Estimate	S.E.	C.R.	P
Impact on use of community facility							
Use of community facility	<––	Ratio of residents to facility	−0.189	−0.026	0.007	−3.839	***
Use of community facility	<––	Age	0.174	2.71	0.657	4.123	***
Use of community facility	<––	Gender	0.121	3.428	1.169	2.932	0.003**
Use of community facility	<––	Social network	0.076	0.516	0.275	1.878	0.06
Use of community facility	<––	Elderly proportion of neighborhood	0.181	62.673	17.588	3.563	***
Use of community facility	<––	Socio-economic status of neighborhood	0.202	0	0	3.213	0.001**
Use of community facility	<––	Land use diversity	−0.043	−0.288	0.491	−0.586	0.558
Use of community facility	<––	Road density	0.121	24,427.82	14,572.55	1.676	0.094
Use of community facility	<––	Intersection density	−0.177	−40,583.6	14,579.46	−2.784	0.005**
Use of community facility	<––	Population density	−0.044	−24.805	28.527	−0.87	0.385

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Appendix C3 (*continued*)

			Standardized estimate	Estimate	S.E.	C.R.	P
Impact on satisfaction with community facility							
Satisfaction with community facility	<––	Use of community facility	0.068	0.003	0.002	1.48	0.139
Satisfaction with community facility	<––	Age	0.126	0.078	0.028	2.839	0.005**
Satisfaction with community facility	<––	Gender	0.034	0.039	0.049	0.788	0.431
Satisfaction with community facility	<––	Social network	0.078	0.021	0.011	1.831	0.067
Satisfaction with community facility	<––	Elderly proportion of neighborhood	0.02	0.279	0.734	0.38	0.704
Satisfaction with community facility	<––	Socio-economic status of neighborhood	−0.131	0	0	−2.047	0.041*
Satisfaction with community facility	<––	Land use diversity	−0.175	−0.047	0.02	−2.325	0.02*
Satisfaction with community facility	<––	Road density	−0.124	−997.281	590.631	−1.689	0.091
Satisfaction with community facility	<––	Intersection density	0.036	330.689	553.553	0.597	0.55
Satisfaction with community facility	<––	Population density	−0.071	−1.583	1.115	−1.42	0.156
Impact on neighborhood satisfaction							
Neighborhood satisfaction	<––	Satisfaction with community facility	0.567	0.64	0.042	15.335	***
Neighborhood satisfaction	<––	Age	0.102	0.071	0.026	2.771	0.006**
Neighborhood satisfaction	<––	Gender	−0.005	−0.006	0.046	−0.13	0.897
Neighborhood satisfaction	<––	Social network	0.076	0.023	0.011	2.147	0.032*
Neighborhood satisfaction	<––	Elderly proportion of neighborhood	0.051	0.79	0.686	1.153	0.249
Neighborhood satisfaction	<––	Socio-economic status of neighborhood	−0.039	0	0	−0.729	0.466
Neighborhood satisfaction	<––	Land use diversity	0.068	0.02	0.019	1.078	0.281
Neighborhood satisfaction	<––	Road density	0.041	371.195	554.231	0.67	0.503
Neighborhood satisfaction	<––	Intersection density	−0.005	−51.08	521.208	−0.098	0.922
Neighborhood satisfaction	<––	Population density	−0.049	−1.242	1.048	−1.184	0.236
Impact on Capability well-being							
Capability well-being	<––	satisfaction_fac	0.213	0.05	0.01	4.948	***
Capability well-being	<––	Age	0.092	0.013	0.006	2.166	0.03*
Capability well-being	<––	Gender	0.007	0.002	0.011	0.178	0.858
Capability well-being	<––	Social network	0.235	0.015	0.003	5.666	***
Capability well-being	<––	Elderly proportion of neighborhood	0.114	0.368	0.165	2.235	0.025*
Capability well-being	<––	Socio-economic status of neighborhood	0.039	0	0	0.624	0.533
Capability well-being	<––	Land use diversity	0.029	0.002	0.005	0.395	0.693
Capability well-being	<––	Road density	0.021	39.221	133.033	0.295	0.768
Capability well-being	<––	Intersection density	−0.017	−36.533	125.107	−0.292	0.77
Capability well-being	<––	Population density	−0.115	−0.598	0.252	−2.376	0.017*

Note:
* Relationship is significant at the 0.05 level.
** Relationship is significant at the 0.01 level.
*** Relationship is significant at the 0.001 level.

Data availability

The data that has been used is confidential.

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