



BEST DISSERTATION
最佳碩士論文

A Study on Examining Homeowners' Willingness for Self-management in Housing Authority-managed Home Ownership Scheme Courts



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Introduction

Homeownership is always a top target for Hong Kong people and they spent most of their income on purchasing a unit in multi-owned housings (MOHs). Therefore, maintaining the value of their assets though housing management became an important issue. Self-management of their properties and participation are being heavily promoted by the government as the owners' responsibility.

Housing management participation can be made in different ways including the simplest one such as complaints to property management companies (PMC). Some homeowners are willing to devote more time to management issues. Through joining the resident associations such as Owners' Committee (OCOM) or Owners' Corporation (OC), these owners could have full control on management matters and attain the self-management of their properties.

However, since housing management involves a wide range of areas, these are not easy tasks for the homeowners which do not proceed with the knowledge. With the transition of time, housing management is not only equal to maintaining the physical environment as a shelter but also focuses on providing quality services. Yet, this phenomenon also creates the burden on them (Kwong & Chan, 2006). Besides, the transaction cost for obtaining consents among the owners is high (Olson, 1965). It will be difficult for the owners to come up with common decisions.

Therefore, most of the owners paid little attention on the management of the common areas after their purchase. This situation does not only exist in aged buildings but also the newly built Home Ownership Scheme (HOS) Court, a typical subsidized sale flat provided by Housing Authority (HA). After the resumption of HOS in 2014, it became the first housing choice for lower income people. It is also expected that HOS would become a vital tool in reconstructing the housing ladder. As more subsidized sales flats were built, the management of these developments became a question for both HA and owners.

As the developer, HA will appoint a PMC for management of the court but retaining a supervisory role for daily matters. This role will only be withdrawn until owners have taken over the management responsibility. Unsurprisingly, a slow progress of formation of OC and self-management was recorded after these years. Only a few of newly built HOS courts owners were able to take up the self-management responsibility from HA. The slow progress of self-management will increase the demand for resources for supervision from the HA. In the long term, it will create a negative effect on the allocation of public resources which certainly affect the general public living in the public rental housing estates

This study aims to explore the determinants in affecting HA managed HOS court owners' willingness for self-management and their participation in relevant activities, including the aspects considered by homeowners. This additional information helps the decision maker, Housing Authority, shaping public policies, helping the homeowners to manifest their power and build up their communities.

Literature Review

Importance of Property Management

As mentioned by Gao (2016), MOHs management is defined as “management of various activities arising from the use of occupation of the development”. Different benefits could be brought to the owners through proper housing management. First, safety is often recognized as the most fundamental building requirement (Ho et al., 2006). Proper housing management is required for preventing building dilapidation and improving the quality of human life (Yau et al., 2008). Boelhouwer (2002) stated that this good livability could contribute to sustainable development and benefit the society. Second, importance of providing a clean and hygienic environment is well recognized during pandemic situations (Centre for Health Protection, 2021) as rapid response from the housing management is also required to reduce the spread of disease. Proper Security and management services also protect lives, assets and ease the tension between the residents. Last, housing management retains the asset value of the property. As the value of the multi-storey building will diminish at a faster rate (Alterman, 2009) than the stand alone one, timely repair can extend the life cycle of the building and thus preserve the value for the owners.

The importance of participation

Fredrik (1986) gave a description of participation as a concept which included different forms of decision making by parties involved. From a political perspective, Arnstein (1969) stated that a broader citizen participation in public service, which led to a redistribution of power. The “Ladder of Citizen Participation” which involved lowest level of ‘non-participation’ to the highest part of the ladder ‘Degree of citizen power’.

The model can also be extended to the dimension of residents’ participation in housing management. Expression of the views in surveys is a type of participation in lower level “consultation” while the self-management, attending the owners’ general meeting to make resolution on estate matters, retaining the right in appointing and implementing power to management agents can be considered as the example of highest level of participation.

With the increase of level of participation, as the end-user of the services, residents can cooperate with the PMC in improving the living environment. Participation is not only the remedy for complex problems but also a strategy for community development (Leung, 2005). If the homeowners refuse to participate in high level participation, “top-down” planning model will be therefore adopted. The conflicts between owners, PMC and developers will be raised as most of them will have their self-interest, resulting in affecting the management standard.

Rational Choice Theories and Collective action in MOH

Olson (1965) provided an explanation on the nonparticipation through the rational choice theory. Free-rider problem commonly found in the collective action, since achieving the goal required only some members of the group to contribute. Unless it is profitable for everyone, the collective action will not be initiated nor sustained by rational people.

The MOH management, which is a collective action, can be classified as the “voluntary provision of collective goods” such as better hygienic living environment, safety and value maintenance. These public goods usually contain two major features, “jointness of supply” and “non-excludability” (Bengtsson 1998). Yau (2011) elaborates on this by stating that property management for the common area requires homeowners’ contribution but those who refuse to take part cannot be excluded. As a result, rational homeowners will try to take advantage of others’ effort without paying by themselves.

Factors affecting Participation

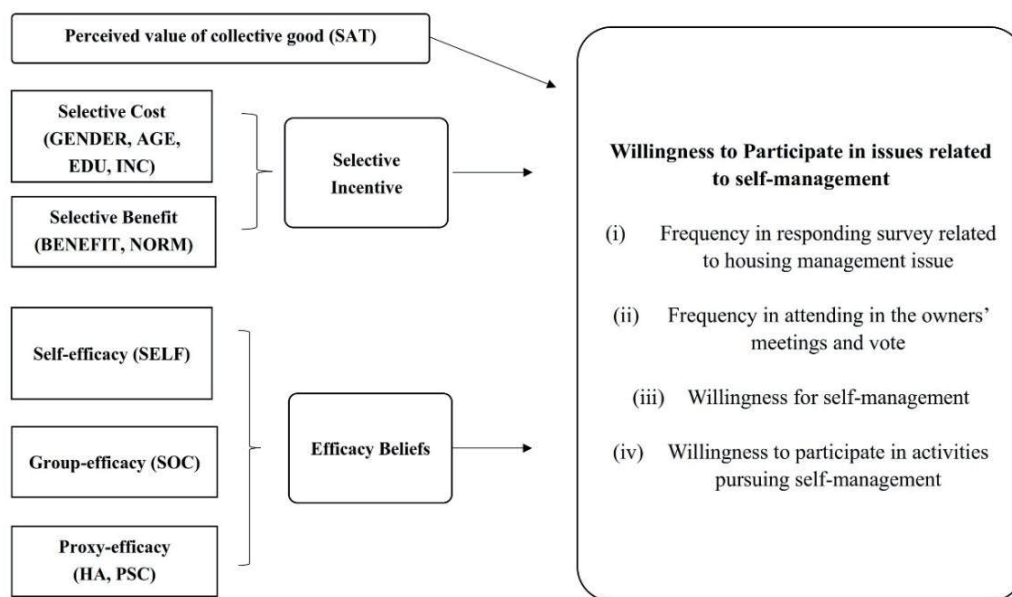
The rational choice theory may provide an explanation that most homeowners and residents will not spend time on the housing management issue. Yet, not all homeowners refuse to participate. Different scholars had studied the factors affecting participation. First, the perceived value of goods affects individual participation because the collective goods (i.e. improved environment) is expected to be produced. Thus the people who perceive their living environment negatively are more likely to participate (Chavis and Wandersman, 1990). The residents’ associations are more likely to form when there is a threat or reality of deterioration in their living environment (Crenson, 1978).

Many studies (Bengtsson, 1998; Yip & Forrest, 2002) recognized selective incentive, which refers to the difference between selective cost and selective benefits, to be a factor affecting housing management participation. The ability of paying the selective cost from individuals always generally refers to their availability of money, time, and knowledge required for effective participation (Brady, Verba, & Schlozman, 1995). In contrast, the social norm perceived by individuals is also one of the determinants, if the individual recognizes it is their duty to take up the self-management of the house, the norm conformity will bring the selective benefit to the participant (Yau, 2014).

The relationship between Social Cognitive Theory and collective action had also been discussed by Yau (2018). The Social Cognitive Theory developed by Bandura (1986) suggested the rational people will take different efficacy beliefs to anticipate the outcome and act accordingly with the expectation. Three forms of efficacy belief, namely self-efficacy, collective efficacy and proxy efficacy are commonly considered by the people during their evaluation. Research studies had been done on identifying self-efficacy as an important determinant in political and environmental participation (Koontz, 2005). The group efficacy, also known as collective efficacy, refers to how people believe the capacities of their group to succeed in a collective effort and this will affect what people choose to do in the group and the effort they put in (Bandura, 1986). It is found that the initial formation and maintenance of homeowners' association depends on neighbor relations (Unger and Wandersman, 1983). According to Bray & Shields (2007), proxy efficacy refers to individuals' perceptions of the abilities of a third party, which refers to a proxy agent, to act on his/her behalf executing the actions for achieving desired outcome. That means the individual is willing to give up a certain degree of control on the issue. In general, these agents such as OC and PMC benefit the production of collective goods in terms of facilitating the decision-making process (Yip & Forrest, 2002), allowing co-owners to escape from the burden of day-to-day management duties. However, certain studies provide an argument that the strong-agent-weak-principal problems will occur when the decision power is delegated to these agents, who will make housing management decisions on the side of their benefits (Walters & Kent, 2000).

Analytical Framework and Methodology

To further investigate the correlation between these factors and the willingness for self-management in the HOS court managed by HA, the analytical framework shown as follow had been used



The study is carried out in 13 selected HA-managed HOS developments which established after 2014 with using the collective interest model, which was based on Olson's (1965) collective action theory and adopted in different studies for investigating the homeowners' willingness to participate in housing management (Yau, 2013).

Willingness of homeowners for self-management and participation in the relevant activities will be measured as the dependent variables. The factors mentioned in literature review will be also evaluated as the independent variables. The questionnaire had been designed for containing the variables in which transformed into the operationalized factors, the court owners are requested to rate in a 5-point Likert Scale.

Variable	Statement in Survey (from 1=Never to 5= Frequently)
WILL1	Frequency in responding the survey issued by Housing Department on Housing management issues of the court
WILL2	Frequency in attending the Owners' Meeting, Annual General Meeting, Extraordinary General Meeting (including authorizing proxy)
Variable	Statement in Survey (from 1=strongly disagree to 5= strongly agree)
WILL3	According to the current situation of the court, homeowners should take the management responsibility of the court from Housing Authority
WILL4	I am willing to participate in pursuing self-management related issues of the court

Besides, a set of parameters were listed out for accessing the factors affecting the attitude of homeowners and used in the questionnaires

Factors	Indicators	Statement in Questionnaire
Perceived Value of Goods		
Satisfaction of Living Environment	SAT	Required to rate satisfaction in following six aspects (from 1=strongly dissatisfied to 5= strongly satisfied) i. Environmental Hygiene of Common Areas ii. Security Services iii. Building Structural Safety iv. Fire Safety v. Repair and Maintenance vi. Nuisance Control
Selective Benefit (from 1=strongly disagree to 5= strongly agree)		
Benefit gained from actions	BENEFIT	Homeowners taking the management responsibility of the court from HA will benefit the overall housing environment.
Norm conformity	NORM	It is the obligation for homeowners to take the management responsibility of the court from HA

Selective Cost		
Gender	GENDER	male =1 and female=0
Age	AGE	from 1= 18 to 30 years old; 2 = 31 to 40 years old; 3 = 41 to 50 years old; 4 = 51 to 60 years old; 5 = 61 years old and above
Personal Income	INC	from 1 = primary school, 2 = Secondary School, 3= Tertiary: Non-degree Course (including diploma / certificate / sub-degree course), 4=Tertiary: Degree Course; 5=Above Tertiary (Master Degree, PhD)
Highest Education attainment	EDU	from 1 = below \$15,000, 2 = \$15,000 to \$25,000; 3 = \$25,000 to \$35,000, 4 = \$35,000 to \$45,000, 5 = above \$45,000
Knowledge in Housing Management	KNOW	How would you rate your knowledge level on Housing Management Issues (from 1=very unfamiliar to 5= very familiar)
Occupation	OCC	with different categories of occupation including Professional; Service and Sales Workers; Self-employed; Blue Collar; Student; Housewife; Retired and Unemployed
Efficacy Belief		
Rating 5-point Likert Scale (from 1=strongly disagree to 5= strongly agree)		
Self-Efficacy	SELF	My participation is likely to make an influence in improving overall housing environment
Group Efficacy	SOC	My neighbours and I share the same values and can cooperate effectively in housing management
Proxy Efficacy	HA	<ul style="list-style-type: none"> i. In general, HA is competent to supervise the Property Management Company ii. HA is trustworthy in management works, such as procurement of management contract iii. The level of Supervision Cost collected by HA is reasonable
	PSC	<ul style="list-style-type: none"> i. In general, Property Management Company is competent in managing the court ii. The property management company is trustworthy in management works, such as using the budget with reasonable financial arrangement iii. The level of management fee collected is reasonable

Researching Finding and Discussion

In total, 78 sets of valid data used for analysis which collected through online questionnaires completed by targeted HOS court owners in March/April 2022. According to the survey result, the participation rate in responding to the survey issued by the Housing Department and attending Owners' Meeting, Annual General Meeting and Extraordinary General Meeting (including authorizing proxy) had recorded a mean score of 3.33 and 2.60. This reflected that not all the HOS court owners are ignoring the management matters in the Court. However, the decrease of mean score from 3.33 to 1.96 for WILL1 to WILL4 had also shown there was a trend for non-participation with the increase in the "Ladder of Participation".

The result of regression analysis is shown as below,

<i>Estimation Result of the Regression Analysis - I</i>								
Variable	WILL 1 (n=78)		WILL 2 (n=78)		WILL3 (n=78)		WILL4 (n=78)	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Constant	3.726	1.870	4.443	2.033	2.022	1.544	-0.818	-0.581
Satisfaction of Living Environment								
SAT	-0.153	-0.416	-0.448	-1.109	-0.056	-0.230	0.506	1.946
Selective Benefit								
BENEFIT	-0.148	-0.822	-0.323	-1.639	0.380**	3.217	0.255**	2.011
NORM	0.208	1.185	0.206	1.073	0.230**	2.002	0.370**	2.989
Selective Cost								
GENDER	0.329	1.153	0.153	0.489	0.148	0.788	0.187	0.927
AGE	-0.319**	-2.642	0.140	1.061	0.045	0.563	0.006	0.071
INC	0.110	0.943	-0.072	-0.563	0.029	0.374	-0.227**	-2.763
EDU	-0.174	-0.963	0.086	0.432	0.233	1.966	-0.165	-1.292
KNOW	-0.247	-1.612	-0.120	-0.717	0.032	0.316	-0.186	-1.722
Efficacy Belief								
SELF	0.135	0.794	0.227	1.221	-0.117	-1.053	0.398**	3.323
SOC	0.131	0.818	0.313*	1.789	0.263**	2.504	0.235**	2.084
HA	0.235	0.788	-0.193	-0.590	-0.481**	-2.450	-0.056	-0.267
PSC	0.053	0.202	-0.293	-1.009	-0.325*	-1.870	-0.134	-0.716
Adjusted R-squared	0.011		0.169		0.628		0.568	

** and * denote the estimated coefficients of the variables and test statistics to be significant at the 5%, and 10% levels, respectively.

<i>Estimation Result of the Regression Analysis - II</i>				
Variable	WILL 1 (n=78)	WILL 2 (n=78)	WILL3 (n=78)	WILL4 (n=78)
	f-statistic	f-statistic	f-statistic	f-statistic
OCC	0.746	0.941	0.851	2.761

The adjusted R² varies significantly in different models, ranging from 0.011 to 0.628 (WILL1, WILL2, WILL3 and WILL4). Since the adjusted R² for WILL3 and WILL4 is 0.628 and 0.568 respectively, which are similar to other empirical studies of the classical CIM. Thus the CIM can model the respondents' willingness to take the management responsibility of the court from HA and willingness to participate in related activities with the variable used in this research studies.

For analysis on the occupation which is a multiple discontinued variable, ONE-Way ANOVA is adopted for analysis. In contrast, none of the dependent variables were found to be statistically significant correlated to any types of occupation.

The perceived outcome influence was found to be statistically significant for WILL4 with positive correlation coefficient. This implies the more homeowners are willing to pursue self-management with actions if they consider their individual contribution will increase the probability of success. This result, alternatively, implied some of them are reluctant to participate as they see themselves as incapable of changing the housing environment.

In both WILL3 and WILL4 analysis, positive signed variable SOC were shown to be significantly related. This suggested flat owners who perceive a stronger belief on effective cooperation and cohesion with their neighbour have higher intention to take back self-management responsibility and more willing to participate in self-management related activities. The lack of cooperation between the homeowners will increase the difficulties in formation of OC or OCom, which are also shown in the study of Lai & Chan (2004). As these associations are essential legal requirements for self-management, the collective efficacy should be enhanced.

For proxy efficacy, both HA and PSC recorded a negative and statistically significant estimated coefficient in WILL3. This implied the overall performance of HA and PSC, including the competency, trust and level of supervision cost/management fee collected by the proxy agents are important considerations for homeowners to take back the management role from HA. According to the survey result, the mean scores for three questions for HA are higher than the PSC, which indicates the homeowners generally recognize HA as a more reliable proxy agent. The better these agents perform, court owners are less willing for self-management. These do not imply the efficacy of HA and PSC should be reduced. Instead, learning from the strength from these proxy agents can provide insights for homeowners to increase the chance of success. The competency of OC after self-management and measures for homeowners to monitor the performance of OC therefore become important for them to choose whether self-management should be adopted.

Apart from the OC control, charging a higher level of supervision cost can theoretically increase the willingness for the homeowners to take back the management responsibility with reference to the result. However, as a public policy for establishing the housing ladder, a higher supervision cost adopting 'Punitive Rate' for the courts that failed to establish the OC or OCom for a set of time frame seemed to be unfair to the court owners. Instead, more publication on the immediate financial benefit to the court owners by saving the supervision cost should be done.

Personal income was found to be negatively correlated to the willingness to participate in activities and issues for pursuing self-management, which showed a 5% confidence level. However, this variable did not show a significant relationship with WILL3. These could mean with the income level increase, the homeowners are less willing to spend time in housing management activities. This matches the finding of Brady, Verba, & Schlozman (1995), which suggest the higher income homeowners would spend less time in estate issues as their time costs are relatively higher than the others.

Both variables of BENEFIT and NORM were found to be significantly important to WILL3 and WILL4 which implied the court owners recognized the norm conformity and what they will be benefited as important considerations for their participation and if they will agree to taking back the management responsibility. Despite the effort in encouraging self-management and participation, most of the homeowners are not able to recognize the true value of good housing management. In Hong Kong, it is not a legal obligation nor there is no time frame for owners to get back complete control from the developers. Most owners intended to escape from the responsibility of management, to remain in the current situation until it became unacceptable.

Unlike the other research studies, the perceived value of collective good, i.e. the satisfaction of living in HOS courts, are shown to be not statistically significant to WILL3 and WILL4. This can be attributed to the divergence in satisfaction on different items of the HOS courts' environment. Unsurprisingly, the mean score for "Building Safety" is the highest, first, the newly built HOS courts could provide a safer design and living environment compared to the older buildings. On the other hand, the environmental cleanliness and nuisance have recorded the lowest mean scores, which owners are generally dissatisfied with in these areas.

Recommendations

As the major statutory bodies responsible for self-management issues in HOS Courts, HA and HAD should cooperate actively in multiple ways. Practically, more resources should be provided in coordination of social activities and meetings for owners. Enhancing the publicity and communication to the different resident associations in the court and assisting in resolving the disputes among different parties of homeowners through mediation. The homeowners should be encouraged to express their views and concerns over different platforms, which will raise the group-efficacy, increasing the quality of self-management.

The self-management should be promoted to the court owners by using the past HOS courts with similar size, location of development as a successful example. The experience sharing from these court owners would be valuable to the HA-managed HOS court owners, enhancing owners' self-efficacy.

Since competence on monitoring the property management company is an important indicator, HA should provide adequate training to homeowners in OC or OCom. These could avoid the incompetence of OC on handling management issues. On the other hand, the government should take a proactive step in assisting OC as well as the owners after the takeover. This will not only raise the standard in monitoring the property management company, but also give the chance for the occupiers and owners to govern the conduct of association members, reducing the problems in housing management such as bid rigging.

In long term, it should be a goal for the Government that could turn active participation in housing management into a trend. The norm fulfilment which encourages the intention of owners to participate in housing management. These could benefit not only the subsidized sales flats, but also the private properties, which will improve the overall housing living environment.

Conclusion

Due to the enormous desire for homeownership in Hong Kong, the development of subsidized sales flats is expected to grow continuously. The housing management of these courts would eventually become a problem for HA, if these housings were not self-managed by the homeowners. This study has evaluated the factors affecting the homeowners' choice of participation by analyzing the findings collected from questionnaires.

It is understood that the frequency and willingness on participation decreased with increase in level of "Participation Ladder". The collective interest model with selected independent variables was more likely to predict the willingness for self-management and relevant activities. In summary, the selective benefit and group efficacy were found to have a positive and significant effect on both dependent variables related to self-management. Negative significant correlation was spotted between the willingness for self-management and proxy efficacies of the agents, which were referred to HA and PMC.

In the issues pursuing self-management, self-efficacy was shown to have a positive effect on owners' decision while increase in personal income level of the individuals would have a negative effect on their willingness to participate.

In terms of limitation, due to time and resource restraint, the small number of respondents implied the data is less iconic to reflect the result. Besides, since all HOS courts are private property, it is not possible to randomly select all the homeowners in equal chance and carry face to face interviews. The COVID-19 situation further worsened the situation that this research studies relied heavily on online questionnaires. On the other hand, the COVID-19 had severely affected the number of activities to be held in the courts. The social distancing measures will affect the willingness of homeowners to participate.

In future, the qualitative analysis is an alternative way to analyze the problem, interviews with different groups of owners, particularly focus could be put on the efficacy beliefs and selective incentive. Besides, comparison between self-managed court and HA-managed court could find out if there are any changes in the living environment after the power of court owners has been increased. Comparing different proxy efficacy can also extend the research area, which could be meaningful in understanding consideration of different homeowners.

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Assessing the extent to which the Housing for Senior Citizens (HSC) of Housing Authority meets the housing needs of the elderly



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1. Introduction

With an increase in life expectancy and the “baby-boomers” approaching old age, the problem of aging population is becoming more severe in Hong Kong. It is necessary for the HKSAR Government to continue reviewing the long-term population policy regularly in accordance with Hong Kong’s rapid socio-economic development in recent years.

As stated in the “Elderly Services Programme Plan” by the Elderly Commission in 2017, the HKSAR Government’s population policy objective is to promote “aging in place as the core, institutional care as back-up”. The goal of this plan is to provide services to the elderly so they may continue living in the community for as long as possible. One of the most essential key factors to achieve this goal is to make sure the living places could meet their special physical and psychological housing needs.

This paper focused on assessing to what extent the existing Housing for Senior Citizens (HSC) managed by Hong Kong Housing Authority (HKHA) could satisfy the special housing needs of the elderly in different aspects. A quantitative research method was adopted to assess the opinion and the level of satisfaction of local elderly towards the HSC from a micro viewpoint. This paper also compared the similar types of local elderly housing managed by Hong Kong Housing Society (HKHS) with HSC by HKHA in order to provide possible suggestions on how the existing HSC could be improved. Furthermore, this paper attempted to provide policy recommendations and evaluated in a macro-viewpoint on whether HSC is one of suitable solutions for the HKSAR Government to enlarge the scale to cope with the increasing elderly housing needs under the rapid growing up aging population.

2. Literature Review

2.1 Elderly Population and Definition of “Aging in Place”

According to the Population By-census in mid-2016, the number of older persons above 65 years old is over 1.1 million, by the time of 2038, the elderly population will rise to 2.44 million that almost 31.9% of the population (The Census and Statistics Department, 2016). Elderly housing is the key to improve the elderly’s living and social burden. For the housing and living characteristics, 91.9% elderly are living in the domestic household, while 8.1% of the elderly live in private nursing homes (The Census and Statistics Department, 2016). Almost 40% of the elderly live without the support of non-elderly family members and might need additional elderly care services.

The Hong Kong Housing Society (2018) defined the “Aging in Place” (AIP) as “empowering elderly to live in their own homes or familiar community as long as possible, without moving to other environments such as institutions to live as a result of ageing, change in body function or other factors. However, Golant (2015) has advocated the concept of “Aging in the right place” which “the problems that aging in place can cause when people reach the last stages of old age.” The concept of Aging in the right place fit with the development of HKHS that the HKHS not only provided shelters and amenities but also provided care services.

2.2 Basic housing needs

Housing needs are the basic needs of humans. In Maslow’s (1943) five-tier model of human needs, housing, and providing a shelter is classified as safety needs at the second level of needs among the five hierarchy of needs. For the elderly with an age equal to or more than 60, is driven by various intrinsic demands (Mertz & Stephens, 1986) by putting their health and economic stability as a high priority (Wang & Chen, 2019).

2.3 Elderly housing needs in Asian and Western countries

With downturn of physiological functions in aging process, elderly needs changes. Phillips (2004) stated that cohabiting of Children’s families with the elderly is breaking up in Asia. In Singapore, elderly needs change from shelter to a comfortable home and ideal housing with social connections (Committee on Ageing Issues, 2006). In China, from the report of China’s Senior Housing – Now and the Future (Lydia Chen, 2014), due to the one-Child policy and social mobility, there is a change in elderly care from a traditional way of family support by the next generation to professional and quality elderly care in senior housing. Therefore, an explosive demand for medical treatment, health care and entertainment will be the main focus in the future 15 years. However, due to

cultural differences, the care of parents was considered the responsibility of the children and multi-generation apartments are the majority of private and subsidized housing with nursing homes in South Korea (Kim, 1997).

In the US, caring needs or non-caring needs like physical supporting facilities such as nursing homes with more personal care and congregate care are promoted (Edelstein & Lacayo, 1998; Macpherson & Sirmans, 1999). For African American elderly people, mental and physical factors (Black, Rabins, German, McCuire and Roca, 1997) are stressed, but the Sweden focuses on health and social care for the elderly by building more resident care homes (Barbro Westerholm, 2009).

In the report from housing and living condition in Hong Kong, The Hong Kong Council of Social Service (2013) reveal that the HKHS has developed elderly homes for five aspects including safety, health, learning, happiness and care, which aims at fulfilling an all-round need of the elderly that can fit their physical and mental need in the retirement age with an affordable fee (Chan and Cheung, 2008). HKHA which is holding the largest local housing resources but having high vacancy rate of Housing for Senior Citizens (HSC). There is a gap in research studying by evaluating to what extent the existing HSC managed by HKHA could satisfy the special housing needs of the elderly as the starting point of the research and then based on the result of the evaluation tried to make policy recommendations as a solution to HKSAR to handle the rapid rise of elderly housing needs in the coming decade.

3. Conceptual Framework: Satisfaction of Elderly Housing Needs

Phillips (2004) indicated residential satisfaction is a multi-group analysis with the assumption of similarity of perceived quality of the living situation among people varying in degree of residential environmental satisfaction. By reviewing to the models and theories of satisfaction such as Assimilation Theory, Contrast Theory, Assimilation-contrast Theory and Negative Theory summarized by Clinton, Aigbavboa and Wellington (2013) and Parker & Matthews (2001)'s view of satisfaction model by some forms of comparison. This research will apply to public housing as a package of residential services to fulfill needs.

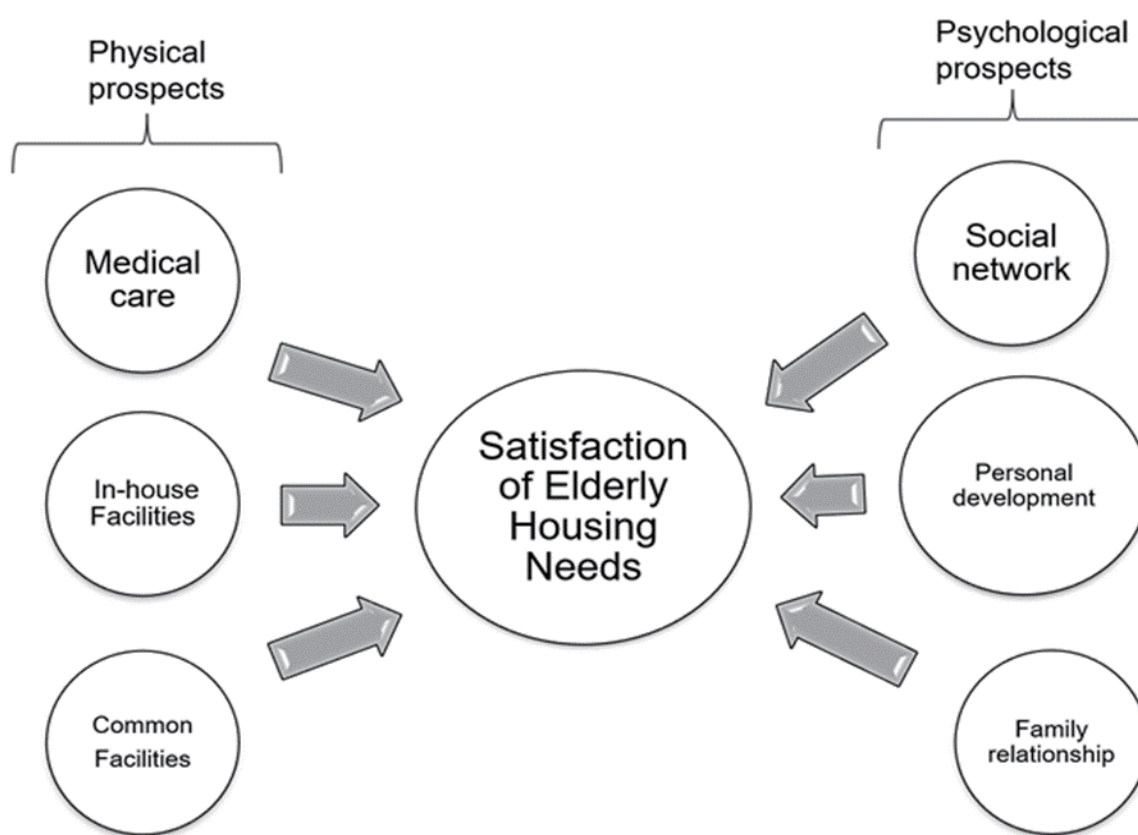


Figure 1. Conceptual Framework

Figure 1 indicates our conceptual framework. The framework of our research is based on the findings from the literature review to determine a six-component model of satisfaction of elderly housing needs in the context of the housing provided by the HKHA. It aims to explain the existing housing package in relation to various elderly housing needs. There are six independent variables categorized into two groups in the framework: physical and psychological. For physical aspects, medical care, in-house facilities and common facilities are examined. For psychological prospects, social network, personal development and family relationship will be evaluated by comparing the relationship between the six aspects.

4. Research Methodology

4.1 Research Design

To achieve the goal and objective of identifying the satisfactory level of the living environment of the elderly in Hong Kong public rental housing, a set of questionnaires was designed to collect data to analyze the aging in place measure in public rental housing. And the elderly who are living in Wah Kwai Estate (WKE) of HKHA and Cho Yiu Chuen (CYC) of HKHS were randomly selected by distributing a set of questionnaires in their mailbox.

Additionally, in order to collect opinions from the management staff, short questionnaire surveys by telephone conversation were conducted. Two management staffs from WKE and CYC were selected respectively to conduct the questionnaire surveys. The Snowball sampling method was adopted to collect the opinions of the management staff in this survey. The qualitative analysis method was adopted to study the views of management staff.

Referring to the above six variables, a total of 33 questions are designed in the questionnaire. This research aims to assess the elderly housing needs by a five-point Likert scale to measure the satisfaction level of the senior residents in physical aspects and psychological aspects. Also, means scores, percentages and the T-test results are applied to analyze and investigate the collected data. Additionally, the interview data of the on-site staff is used as a supplement to findings and discussion of this research. Table 1 lists the definition of each aspect and the operationalized measurements used in the survey.

Table 1. Housing needs and measurements

Variables	Definition	Measurement
Physical Aspects		
Medical care	The provision by a professional of services related to the maintenance of health, prevention of illness, and treatment of illness.	The distance to the nearest medical center.
In-house facilities	Original fixtures or equipment provided for a particular purpose inside the premises.	The level of satisfaction towards the in-house facilities by the occupiers.
Common facilities	Original fixtures or equipment in public areas.	The level of satisfaction towards the common facilities by the occupiers.
Psychological Aspects		
Social network	Social interactions and personal relationships with other people.	The frequency of interacting with neighbours and the community.
Personal development	Activities that develop a person's capabilities and potential, build human capital, facilitate employability, and enhance quality of life and the realization of dreams and aspirations.	The level of the capacity for learning new knowledge, technology, or new habits.
		The level of ability on problem solving and learning.
Family relationship	Connection with family members (offspring or grandchildren).	The level of satisfaction towards the elderly housing policy and community support services.
		Spending time with family members (e.g., time devoted to elderly care)

5. Data analysis and findings

5.2 T-test result and analysis

5.1 Data Descriptions

Total of 82 respondents participated in this questionnaire survey and only 78 respondents' data were valid and used for evaluation and analysis in this research. Around 54% of respondents belong to the age group of 60-69 years old. It represents the respondents are primarily in the group of "young-old" and just entering old age. For the living population, 64.1% of the respondents live alone in the elderly housing of the public rental estate. 68% of the respondents are retired, 12.8% of respondents have a full-time job, 14.1% of respondents have a part-time job and 5.1% are between jobs. It indicated that more than 30% of the respondents are still not retired.

Both WKE and CYC are surrounded by different medical clinics or hospitals, in order to understand the subjective travel distance to the nearest medical clinic that the residents presumed, the accessibility and convenience of the estates' medical clinic are questioned in a five-point Likert scales (1-Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly Agree). 63% of the WKE's respondents reflected that there are around 15-30 minutes travel time between their homes and clinics. Thus, the score of satisfaction with medical care in the WKE is about 3.57 while 55% of the respondents strongly agree or agree that the medical facilities are convenient for them. As for the CYC, there are 56% of respondents stated that it takes 15-30 minutes and 35% of respondents stated it takes around 30-45 minutes to visit the medical clinics. 50% of the respondents strongly agree or agree that the medical facilities are convenient for them, while only 29.41% have the opposite opinions that the clinics are not convenient. According to the chi-sq test, the p-value between the housing type and the conventional medical services is 0.004, which suggests that the difference in the convenience of medical services between the two estates is statistically significant.

(1) In-house facilities

In-house facilities included the handrails in the toilet, non-slip floor tiles, single lever type mixer, emergency alarm system, sprinkler system and rocker-type light switches. From the result of the survey, most of the respondents of WKE were satisfied with some of the In-house facilities. For instance, 48% of the elderly are satisfied with the toilet handrails, 57% of the elderly are satisfied with the non-slip floor tiles, and 57% of the elderly satisfied with the single-level type mixer. However, almost 61% of respondents expressed their dissatisfaction with the lighting switch. The overall satisfactory levels in terms the 5-point scale of in-house facilities is 3.59 on average, 52% of the respondents recorded 4 points or above. On the other hand, most of the CYC respondents expressed neither satisfaction nor dissatisfaction with the in-house facilities, such as the toilet handrail, non-slip floor tile, personal emergency link service, etc. The overall satisfactory level of the 5-point scale on in-house facilities is 3.79, 62% of the elderly recorded 4 points or above.

Hypothesis A: *The satisfaction level of the in-house facilities among the elderly residents in Wah Kwai Estate of HKHA elderly residents is statistically different from Cho Yiu Chuen of HKHS.*

It is found that there was no statistically significant difference in the overall satisfaction level of the in-house facilities among the elderly residents who were living in the WKE of HKHA (Mean=3.6, S.D.=0.09) and CYC of HKHS (Mean=3.8, S.D.=0.16). We found t-statistics (76) is 2.00 and p value is 0.26. The result ($p=0.26 < 0.05$) indicated no statistically significant difference in the overall satisfaction level of the in-house facilities between WKE and CYC. It is not surprising to see these results since the types and quality of the in-house facilities of WKE of HKHA and CYC of HKHS are similar.

(2) Common Facilities

Three types of common facilities are focused. There are recreational facilities, community hall/activity room and handrails on corridors. According to Table 2, the respondents of CYC have higher mean scores (3.7) than the respondents of WKE in recreation facilities (2.7), community hall/activity Room (CYC is 3.8 and WKE is 2.4) and overall satisfaction of public facilities (CYC is 3.7 and WKE is 3.0). While the respondents of WKE have a higher mean score in handrails on the public corridors. To sum up, the results indicated that the elderly residents of CYC had a better satisfaction level with the common facilities.

Table 2. Mean scores of the Satisfaction level of the common facilities

Items	Wah Kwai Estate of HKHA	Cho Yiu Chuen of HKHS	Overall
Recreation facilities	2.7	3.7	3.1
Community Hall/Activity Room	2.4	3.8	3.0
Handrails on the public corridors	3.3	2.6	2.9
Overall satisfaction of public facilities	3.0	3.7	3.3

Hypothesis A: *The satisfaction level of the common facilities among the elderly residents in Wah Kwai Estate of HKHA elderly residents is statistically different from Cho Yiu Chuen of HKHS.*

A two-pair independent t-test was performed to test if the satisfaction level of the common facilities among the elderly residents in Wah Kwai Estate of HKHA elderly residents is statistically different from Cho Yiu Chuen of HKHS.

It is found that there was a statistically significant difference in the satisfaction level of the common facilities among the elderly residents who were living in the WKE of HKHA (Mean=2.95, S.D.=0.83) and CYC of HKHS (Mean=3.7, S.D.=1.03). We found t-statistics is 1.20, p value is 0.000646. The t-test result ($p=0.000646 < 0.05$) showed a statistically significant difference in the satisfaction level of the common facilities among the elderly residents who were living in the WKE of HKHA and CYC of HKHS. Besides, the satisfaction level of common facilities in CYC of HKHS has a statistically significant higher mean score than WKE of HKHA.

(3) Social Network

The score of the satisfaction in social activities in WKE was 2.27, while the score collected in CYC was 3.65. It indicated that the elderly who living in CYC is more satisfied the social activities provided by the HKHS. In fact, HKHS has offered diversified social activities to the senior residents such as broad games, health talks, local tours and etc. These kinds of social activities allowed the oldsters to have more opportunities to build up their social networks. The elderly who living in CYC seemed to have closer relationships with each another, 52.94% of them knew 6 neighbours or more. In contrast, the social activities provided by WKE of HKHA is limited which resulted in only 2.72% of residents living in WKE were familiar with 6 neighbours or more from our findings.

(4) Personal Development

Although the rapidly developed information technology helped most people live conveniently, the elderly people are the exception. 61.37% of WKE residents met difficulties when using smart devices. 54.54% of interviewees met difficulties in finding solutions as well. The COVID 19 exploded in Hong Kong in 2019 might be one of the reasons. Thus, most of the activities within the estate had been suspended, including the activities held by Estate Management Advisory Committee (EMAC) or Non-Government Organization (NGO), including the fire drill organized by Fire Department. As a result, 54.55% of residents in HSC did not attend any activities or interest classes in the past year. The elderly did not have enough opportunities or resources for their personal development.

(5) Family Relationship

The land resources of Hong Kong are very precious. Under the current HKHA allocation standard, the space offered to each tenant is tiny. Some elderly citizens may need to use stick, walking quadripod, walking frame or wheelchair in daily activities, which might cause them to be unwilling to live with their offspring and requiring a larger living environment. According to the survey, the overall mean score of satisfaction of family relationship is 3.03, which indicated that the current family policies of HKHA and HKHS must be reviewed in order to relieve the demand pressure of the living environment.

(6) Overall Satisfaction about elderly housing

Hypothesis A: *The satisfaction level of the residents of HSC in Wah Kwai Estate is statistically different from that of the elderly residents in Cho Yiu Chuen.*

Hypothesis B: *The degree of agreement on the elderly housing can improve living quality is statistically different among the elderly residents in Wah Kwai Estate and Cho Yiu Chuen.*

A two-pair independent t-test was used to compare the satisfaction level of the HSC. It indicated the satisfaction level with the overall elderly housing among the elderly residents living in WKE and CYC. The mean score of the satisfaction level of WKE and CYC are 3.14 and 3.59 respectively. And the standard deviation of the two elder housings is 0.86 and 0.95 respectively. According to the t-test result, the critical value is 1.99 and the p-value is $0.0361 < 0.05$, which is smaller than 0.05. It means that there is statistically significant difference in the satisfaction level of the interviewees regarding elderly housing in WKE and CYC. According to the results, residents

living in the elderly housing of CYC are slightly more satisfied than those living in WKE. Findings suggest that HKHS has provided more community and social supports for the elderly residents.

5.3 Supplementary questionnaire surveys

There is no doubt that opinions from the elderly residents of the elderly housing are one of the most essential elements to assess the performance of the elderly housing as they are the users of the facilities. Apart from the viewpoint of the users, it is also important to look into the perspective of the management side. The management staff is responsible for maintaining the daily operations of the elderly housing which is one of the essential stakeholders. Therefore, their opinions have provided more insights and a different angle of analysis. According to the opinions collected, respondents expressed that the greatest characteristic of Wah Kwai Estate and Cho Yiu Chuen is the mixture of elderly housing and ordinary residential housing. The elderly housing is located in one block of the ordinary residential housing, the elderly housing is one part of the community which consists of different age groups. It is neither an estate with only ordinary residential housing units nor an isolated community with only elderly residents inside. Therefore, they have to take care of these two types of properties and the needs of different types of tenants. In addition, they expressed that this mixed mode seems to be more suitable for elderly residents as it can provide suitable facilities and property management services to the elderly residents. At the same time, different age group of people have an opportunity to have interactions with the elderly residents which avoids the problem of “social labeling” from an isolated community.

6. Conclusion

After conducting a questionnaire survey to collect opinions from elderly residents and staff in HSC (Wah Kwai Estate of HKHA) and elderly housing of HKHS (Cho Yiu Chuen), several findings are observed, which are worthwhile to further discuss and serve as a reference for the government to review the relevant policies.

Different from an isolated community, both the HSC in WKE and the elderly housing in CYC are in one block of the estate and are integrated with the surrounding environment. There are residents of different age groups within the estate; the elderly housing is regarded as one part of the whole community. This design can avoid the side effects of social labeling. Most of the elderly surveyed agreed that their living standard improved after moving into elderly housing in both WKE and CYC. This finding indicates that this type of development pattern for elderly housing is welcomed by the elderly residents and can help to enhance their living standard.

Furthermore, although most of the surveyed elderly agreed that their living standard became higher after moving into the elderly housing in both WKE and CYC, we found that the overall satisfaction level of the elderly residents in CYC is higher than that of WKE. This result also matches with the observation that the elderly housing of HKHS is much more popular than HSC of HKHA.

There is no significant difference between the performance of the elderly housing managed by HKHA and HKHS in terms of medical care, in-house facilities, and family relationship. But the satisfaction levels in common facilities, personal development, and social networks in the elderly housing of HKHS are higher than HSC of HKHA. This might be due to its better structural design of common facilities and the arrangement of more activities for the elderly to obtain a higher level of fulfillment in personal development and social networks.

In conclusion, from a macroscopic perspective, the government can consider developing more HSC within the community as one of the measures to tackle the problem of the aging population in Hong Kong because, to a significant extent, it can enhance the living standard of the elderly through the provision of appropriate facilities and property management service. At the same time, it stands consistently with the principle of "Aging in place" in population policy and avoids the problem of "social labeling" that is common in an isolated community. However, from a microscopic perspective, the research also indicated that HSC is less attractive than the elderly housing of HKHS because of its obvious shortcoming in several aspects, such as the structural design of common facilities and the provision of property management service. Therefore, it is worthwhile for HKHA to take the elderly housing managed by HKHS as a reference to enhance the quality as well as the attractiveness of HSC to better fulfill the housing needs of the local elderly.

Suggestions to HKHA on the common facilities of HSC

In terms of physical need, HKHA may consider improving the design of the common facilities, especially recreational facilities. HKHA may collect more opinions from the residents and conduct more in-depth research to understand the users' preference and consider including more recreation areas or an activity hall for their elderly residents. HKHA should also carry out more studies on the structural design of common facilities to improve the level of user-friendliness and safety.

Suggestions to HKHA on the property management service of HSC

In terms of psychological needs, HKHA may learn from the estate management mode of HKHS to provide more services to take care of the psychological needs of the residents of HSC. Instead of managing alone, it is suggested that HKHA might even try to cooperate with other government departments including the Social Welfare Department and the Leisure and Cultural Services Department or set up an elderly care unit to provide psychological support and other types of activities. All these can be regarded as a specific property management service provided by HKHA to the elderly residents of HSC.

Suggestions to HKHA and HSC for medical care services

According to the survey, there are ample rooms for both housing types to improve their medical care services. Therefore, in addition to the development of shopping centers nearby, HKHA and HKHS should also consider introducing dental and Chinese medicine care services near the location of elderly housing.

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