

# Factors Influencing the Choice of an Elderly Residence Among Older Adults in Taiwan: Through a Questionnaire Survey of Senior Housing Residents

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**Keywords:** elderly residence, social workers' care services, Taiwan

**Abstract:** Taiwan has one of the highest aging rates in the world. Therefore, it is important to meet the needs of Taiwanese society in terms of discussing the issue of the after-use assessment of elderly residences. This study aimed to examine two government-owned privately run (GOPR) elderly residences in Taipei. Participants were residents and managers of the elderly residences. The participants were 65 years or older and were able to move as well as manage their daily lives. Data from 103 questionnaires were used to investigate the spatial function of the GOPR elderly residences to explore the selection criteria of the elderly while choosing the residences. Findings revealed that the elderly from the two sites considered "social workers' care services" to be the most important factor, followed by "medical services by doctors" (M=6.10). They gave less importance to "the management of the residences," followed by "house size." In the future, the study could contribute to the consideration of additional design and operation factors at the early stages of elderly house planning.

## 1. Introduction

According to the World Health Organization's definition, a nation can officially become an aging

society when its older population occupy more than 7% of the total population. The Development Council of Taiwan estimates that by 2050, the number of elderly people worldwide will reach 16.1% of the total population. By then, in Taiwan, one out of every three people will be an elderly person. In 2010, Taiwan had the lowest fertility rate, leading to an acceleration in the elderly population. Given the trend of declining birth rates and aging populations, it was estimated that the number of births in 2020 would be lower than the number of deaths, and the population will begin to naturally decrease. In 2020, the proportion of population over 65 years was approximately 16.0%, which will rise to 30.2% by 2040 and will continue to increase to 41.6% by 2070. More than a quarter of this population are old people over 85 years (National Development Council, 2020)<sup>1)</sup>. In response to the future scenario, it is important to develop aging policy planning.

### 1. 1. Research motives and purpose

According to the report on the "Estimated population of the Republic of China (2020–2070)"<sup>1)</sup> released in August 2020 by National Development Council (2020), the total population of China reached a peak of 23.6 million in January 2020, and it will reach a negative growth rate in the future. Recently, the marriage and childbirth situation of Taiwanese people has not been optimal; it is estimated that they will enter a super-aged society

before 2025. Taiwan's aging population, serious problems, and the severity of aging need to be addressed. Therefore, it is extremely crucial for the government to address the critical issues of aging and its relevant agendas.

Against the backdrop of the worsening aging problem in Taiwan, the agenda of whether the spatial quality and its usage, operation and care services in an elderly residence can satisfy the daily needs of the elderly becomes worthy of an elaborate discussion. The purpose of this research is to examine the spatial function of government-owned privately run (GOPR)<sup>2)</sup> elderly residences in Taipei to understand the factors that elderly people consider while choosing elderly housing. The contribution of this study is expected to be useful as an input in the planning of elderly housing in the future.

## 1. 2. Scope of the research

Previous studies on senior citizen housing in Taiwan have mainly focused on housing systems, institutions, and policies; housing requirements, space planning, and facility planning; services provision; and business management. The studies that focused on space, facility planning, and services provided as well as this study included the "New Taipei City Private Tsuei-Bo Village Senior Citizen's Rest and Recuperation Center" (Wang, 1985)<sup>3)</sup>, "Ruen-Fu Life Shin-Shiang Housing" (Chiu, 2002)<sup>4)</sup>, and "Dan-Shuei Ruen-Fu Life Shin-Shiang Housing" (Lin, 2003)<sup>5)</sup>. In all of these studies, residents were surveyed through questionnaires about their use, satisfaction, and preferences.

Study 3 focused on the resident's living environment, and through a questionnaire survey, elucidated the residence type and its environment considering the concept of self-funded rest home care. It also presented suggestions on planning, living environment, and legal issues. Study 4 is explored the leisure environment of retired elderly people, which evaluated the quality of the local

environment, leisure facilities, leisure activities, and services. Study 5 explored residents' preferences and factors regarding their housing environment, elements of the environmental composition, ambiance, and satisfaction with the services provided. However, none of these studies were conducted in GOPR facilities, but conducted in private facilities established and managed by foundations and corporations.

The current study's scope includes the residential spaces of GOPR elderly residences in Taipei, Taiwan. These places are constructed by the government under the Government Procurement Act and entrusted to private agencies for operation. To rent such places, applicants must be 65 years or older and able to independently manage their activities of daily living.

The study identified five large residential buildings (apartments) for the elderly in the Taipei City metropolitan area: Wu-Gu Elderly Apartments (1988), Yang-Ming Senior Citizen Apartments (1998), Zhu-Lun Elderly Residence (2005), Zhong-Shan Elderly Residence (2010), and Da-Long Elderly Residence (2013).

Wu-Gu Elderly Apartments (1988) and Yang-Ming Senior Citizen Apartments (1998) are located in the suburbs of Taipei, far from the city center. The year of establishment is relatively old. In terms of location, Zhu-Lun Elderly Residence (2005), Zhong-Shan Elderly Residence (2010), and Da-Long Elderly Residence (2013) are located closer to Taipei City Center. However, among them, Zhong-Shan Elderly Residence declined to be surveyed or interviewed for this study owing to the privacy and safety concerns of the occupants. Therefore, this study included Zhu-Lun Elderly Residence (2005) and Da-Long Elderly Residence (2013) as case studies for the survey and analysis (see Table 1).

The two selected elderly residences were registered GOPR elderly care institutions in northern Taiwan. They are relatively new compared with other elderly apartments in the

Table 1. Details of the large senior residential buildings (apartment) in the Taipei metropolitan area

senior residential buildings (apartment)	Da-Long Elderly Residence	Zhu- Lun Elderly Residence	Zhong-Shan Elderly Residence	Yang-Ming Senior Citizen Apartments	Wu-Gu Elderly Apartments
Year Established	2013	2005	2010	1998	1988
Location	Da-Tong District, Taipei City	Zhong-Shan District, Taipei City	Zhong-Shan District, Taipei City	Shi-Lin District, Taipei City	Wu-Gu District, New Taipei City
Number of rooms (one room m <sup>2</sup> )	60 single rooms (33m <sup>2</sup> ) 10 double rooms (50m <sup>2</sup> )	39 single rooms (26m <sup>2</sup> and 33m <sup>2</sup> ) 6 double rooms (40m <sup>2</sup> )	88 single rooms (between 23m <sup>2</sup> and 30m <sup>2</sup> ) 24 double rooms (46m <sup>2</sup> )	93 single rooms (26m <sup>2</sup> ) 8 double rooms (33m <sup>2</sup> )	48 single rooms A (19m <sup>2</sup> ) 14 single rooms B (27m <sup>2</sup> ) 9 double rooms (27m <sup>2</sup> )
Number of Beds	80 beds	51 beds	136 beds	109 beds	80 beds
Accommodation fees (per month)	Single rooms: approx. 640 USD Double rooms: approx. 943 USD Catering fees: approx. 140 USD	Single rooms: approx. 606 USD (26 m <sup>2</sup> ), 741 USD (33 m <sup>2</sup> ) Double rooms: approx. 842 USD Catering fees: approx. 150 USD	Single rooms: between 437 and 471 USD Double rooms: approx. 640 USD Catering fees: approx. 134 USD	Single rooms: approx. 565 Double rooms: approx. 855 USD Catering fees: approx. 160 USD	Single rooms A: approx. 269 USD Single rooms B: approx. 403 USD Double rooms: approx. 403 USD Catering fees: approx. 130 USD

area. In addition, both residences are located relatively closer to the Taipei City center, making them more expensive than other residences. This would provide clearer results as there are fewer differences in the comparison criteria.

Therefore, residents from these apartments were chosen as research samples for this study. The selection criteria were that they had to be without disabilities and could independently care for themselves. The participants in this study consisted of the residents and managers of the two elderly residences. Residents from sites other than Da-Long and Zhu-Lun were excluded from the study. Other GOPR elderly residents with the provision of medical services were also excluded.

## 2. Literature Review

### 2.1. The development of elderly residences in Taiwan

According to the Ministry of the Interior's (Taiwan) general household survey, elderly people are defined as those aged 55–65 years and over. At

present, in Taiwan, the names of service providers of housing and care for the elderly are diverse. They are similar to elderly apartments, security centers, retirement residences, silver-haired communities, and health villages, which often confuse the public. In the past, housing and services for elderly people were provided by welfare institutions. However, as defined by the Ministry of the Interior in June 1991, elderly welfare institutions include long-term care, conservation, security, and recreational and welfare institutions. Services provided by security institutions must be charged for. They provide so-called "self-financed facilities." By providing special silver-haired rental housing, the private sector offers another level of service to retired individuals. The term "silver-haired housing" covers multi-dimensional services, such as daily care, health management, recreation, and professional consultations.

#### 2.1.1. Definition of an elderly residence

The term "residential for the elderly" officially appeared in the "Key points for the comprehensive

management of residences for the elderly" issued by the Ministry of the Interior in 2003 (Taiwan's Ministry of Health and Welfare)<sup>6</sup>. The age of the person should be over 60 years and that of aboriginal people should be over 55 years. There is no age limit for spouses living together, and residents are limited to those who can take care of themselves.

The term "residential for the elderly" is based on and built in accordance with the provisions of Paragraphs 2 and 3 of Article 15 and other relevant ordinances under the Elderly Welfare Act. Its basic facilities and equipment must comply with the building's technical rules of architectural design and construction in Chapter 16 of the elderly housing requirements<sup>7</sup>.

According to the law, residences for the elderly include 1. civil residences constructed by the

government; 2. residences suitable for the elderly and constructed by projects; 3. residences suitable for the elderly and constructed by the private sector; 4. buildings for older people to rent that are managed interactively.

## 2. 1. 2. Types of elderly residences in Taiwan

The types of elderly housing are categorized as affiliated self-paid residences in self-paid care centers, silver-haired residences with self-contained facilities, apartments, and houses. From an operational perspective, they can be divided into GOPR elderly housing (apartments), elderly care institutions run by nonprofit organizations, and elderly residences invested in and developed by private enterprises. Target residents are those who are 60 years or older and are physically able to manage themselves (see Table 2).

**Table 2. Status quo of elderly housing in Taiwan**

Types		Reasons to establish them	Targets
1. GOPR elderly housing (apartment)	Apartments for the elderly	In 1990, the government in Taiwan promulgated the "The Plan to Improve Senior Citizens' Apartments and Elderly People's Livelihood in the 1990s." It launched the policy of using elderly apartments to address the issue of housing for elderly people.	1. Those who are registered for more than a year as residents in the county or city and are able to manage themselves. 2. Those who are 65 years or over; however, spouses living in the same residence are not subject to this restriction. They must not suffer from, for example, infectious diseases, mental illness, and/or dementia.
	Elderly residences	Based on the situation that the aging problem has become increasingly worse in Taiwan, the government proposed a plan to promote private sector participation in elderly housing in 2004. The target is to encourage private sector involvement in constructing elderly residences through administrative assistance to effectively address the housing needs of the elderly.	Those who are registered for more than a year as residents in the county or city and are able to manage themselves. Spouses living in the same residence are not subject to this restriction, but if the residents leave or pass away, the spouses must be 60 years or older in order to stay. They must not suffer from, for example, infectious diseases, mental illness, and/or dementia.
2. Elderly care institutions run by nonprofit organizations	Affiliated self-paid facilities and residences of Renai House	To solve the housing problem of retired public servants and veterans, the Taiwanese government commissioned Renai House to set up self-paid residences in the 1970s. Since then, Renai Houses have been set up in all counties and cities.	Those who are 60 years or older and are able to manage themselves.
	Normal self-paid elderly caring centers	Not affiliated with any Renai House and are run independently.	
3. Elderly houses invested by the private sector	Silver-haired houses with privately-owned facilities	Since 1993, Runtai Construction Corp. in Taiwan has launched a few housing projects targeting the elderly in Taipei city.	Those who are 60 years or older, and no age limit for spouses. Most of the residents tend to be high-income individuals.

Source: Senior Citizens' Welfare Promotion League in Taiwan

(1) GOPR elderly housing (apartments): Properties are built and owned by local governments and managed by contractors for profit. In Taiwan, some agencies maintain the existing type of care and continue to improve their quality whereas others extend their services with additional care facilities. In addition, some organizations are gradually expanding to community-based services, including day care, community care locations, care for the elderly with dementia, and meal delivery services for the elderly. Buildings and facilities are also being upgraded to create a unique living environment. The main focus is on buildings and facilities to prepare them for renovation, design rooms with a different theme or style, or integrate the building plan with the landscape plan<sup>8</sup>.

(2) Elderly care institutions run by nonprofit organizations: Owned by the Ministry of the Interior, Taiwan and operated by incorporated foundations, such care entities belong to the social welfare institutions of the social and political system. Therefore, the charges are relatively low. Government subsidies are an important source of financial support, and the households are mostly middle- or lower-class.

(3) Elderly houses with investment from the private sector: To satisfy the elderly who have higher economic and social status and drawing inspiration from the high-end silver-haired housing and community in Japan and Western societies, the private sector has been keen on introducing housing projects for the elderly for the last few decades.

## 2. 2. Introduction to the development of elderly housing in other countries

To clarify the characteristics of Taiwan's system and current status of housing for the elderly, we have provided an overview of the systems in South Korea, China, Hong Kong, Japan, and the United States, including the similarities

and differences in their approaches.

### 2. 2. 1. South Korea

The South Korean government uses regulations and policies to encourage private investors to build more comfortable homes for older people to improve their housing situation and encourage individuals to prepare for their old age<sup>9, 10</sup>. Elderly residences and nursing homes with low fees were introduced into charities in the early 1990s. Homes for the elderly built and run by the private sector that have higher accommodation fees are acceptable in South Korea. In Korea, the concept of "aging in place" is emerging as an alternative to institutional care for the elderly, allowing them to continue living in their current city in a way that enhances the city's economic, social, political, and cultural activities. Current research on the elderly in Korea mostly focuses on welfare facilities, home care facilities, and housing for the elderly. This situation of continuity through separation from the current living space is less explored<sup>11</sup>.

Charges for elderly housing in South Korea are of three types: free, low, and full. South Koreans believe that it is not acceptable to live in a free elderly house or nursing home provided by the government, except when they have nowhere to live. They believe that free elderly housing reflects the fact that young people are not obligated to take care of elderly parents<sup>12</sup>. Research shows that older Koreans prefer to arrange everything, live independently, and use various resources provided by institutions<sup>13</sup>.

### 2. 2. 2. China

The aging insurance system in China has been constrained by various conditions such that the protection of older people after retirement is barely achieved. These problems refer to, for example, narrow coverage, low awareness of insurance among workers, maintenance and increase in

insurance value, and relevant management. Institutions for the elderly in the 1950s were mainly designed to accommodate lonely and homeless elderly people. Thus, the demand from low-income households was satisfied. Nevertheless, in large high-income cities, it is difficult to satisfy the growing demand. Li et al<sup>14</sup>. proposed the following recommendations for space management in Chinese nursing homes:

- (1) Train personnel to recognize the added value of space management and understand how it needs to be managed systematically.
- (2) Make greater efforts to improve environmental and spatial functions.
- (3) Increase the flexibility of the space, perhaps by expanding it.
- (4) In terms of internal space, cost-sharing and information management are beneficial.

### 2. 2. 3. Hong Kong

Hong Kong emphasizes the importance of family and community care in terms of the demand for housing for the elderly. To encourage families to live with older people, the latter are prioritized in terms of house distribution to allow them to age locally. The idea behind this is to build a better connection between living sites and welfare organizations, allowing older people to obtain the necessary care and support within the community<sup>9</sup>.

More than 80% of Hong Kong's senior citizens live in cities and more than half live in public or subsidized housing. To improve the quality of life of seniors in public housing, several aspects can be improved in terms of interior facility management, including noise, electricity, interior lighting, doors, bathrooms, windows, non-slip flooring, interior decorative furnishings, spatial planning, and ease of use<sup>15</sup>.

### 2. 2. 4. Japan

Since the Elderly Welfare Law was implemented in 1968, all elderly people in Japan,

including the poor and disabled, have been covered. Elderly houses with nominal charges (a certain fee has to be paid by individuals) and regular elderly houses were built by the government; subsequently, they became the prototype of elderly housing in Japan in terms of facilities and services. Social class-oriented elderly welfare institutions were then transferred to a living system in which the differences between individuals' physical and mental conditions were emphasized. It stressed the need for single bedrooms in an attempt to improve the collective housing environment.

However, with the implementation of the Elderly Health Care Law, the 1968 Elderly Welfare Law was repealed in 1983 and is no longer in operation. Furthermore, the enactment of the "Long-Term Care Insurance Law" (2000), which requires parties to bear the burden, marks a major policy shift in welfare administration in housing for the elderly. This area is a characteristic development in Japan as the population ages. The main features of long-term care insurance are: "Independence support," which supports the independence of the person being cared for, rather than merely providing personal care; "User-oriented," which allows the person being cared for to choose freely and receive comprehensive long-term care services; and "Social insurance method," in which the person receives services and benefits according to the premiums he or she has paid. The system is based on the three pillars of "user-orientation", "social insurance", and "social insurance".

The development of housing for the elderly in Japan began with the launch of the "Intervention and Protection Insurance Act." The law provided an assurance that residences for older people were available, and new types of housing were then introduced, such as silver-haired apartments, care houses, or group accommodation. In recent years, the private sector in Japan has attempted to design small-scale housing facilities. Thus, residents



become familiar with each other and feel a sense of safety. As every town has elderly residences, the need for local elderly people to leave their town does not arise; therefore, it promotes the concept of aging in place. The Ministry of Land, Infrastructure, Transport and Tourism in Japan developed a proposal called "Technologies designed to enhance living quality in aging society." Its purpose was to solve care problems that may occur in the lifecycle of older adults. It mainly relies on the supply and design principle of housing supported by the idea of "aging in place" to ensure that elderly residents have proper living surroundings<sup>9</sup>. Recently, a nursing home for the elderly called "Takouroujo" was developed, which was funded by the Japanese government. Its operations are based locally and combined with small care activities in the community. It is expected to provide various services, such as daycare, respite care, nursing care, and group homes to local people<sup>16</sup>.

### 2. 2. 5. The United States of America

According to Article 202 of the US Housing Act of 1959, direct loans can be provided to the elderly, disabled individuals, or business units that are willing to rent or construct elderly houses. Those offering public housing are mainly non-profit and limited-profit units, such as consumer cooperatives and public institutions<sup>17, 18</sup>. In the last 20 years of the 20th century, the United States of America began developing retirement communities (NORCs), similar to apartment complexes. Entities providing retirement communities or relevant residential services are mainly privately funded for nonprofit purposes. Along with the increase in people's ages, a rising number of residential services and healthcare schemes have been integrated into NORCs programs, making health services increasingly important<sup>18, 19</sup>.

Categories for elderly residences in America include "independent living houses," "elderly

apartments," and "consistent care retirement communities." Target residents are healthy elderly individuals. According to a research institution for the elderly housing market called National Investment Center for the Seniors Housing and Care Industries (NIC), "elderly apartments" are incorporated into the category of "independent living houses." In addition, "consistent care retirement communities" have been integrating independent-style elderly house functions with assistant-style ones. In recent years, assistant-style residences have grown faster than independent-style ones. To date, nearly 800,000 people across the United States live in assistant-style elderly residences. Such types of residences are called "care houses" in Taiwan (service house in Sweden and shelter housing in Britain). Assistant-style housing refers to a special residence in which housing, personal healthcare, and support are combined. The main targets are those who have physical and/or mental disabilities in daily life or those who are unable to manage their routine activities but are not willing to live in 24-hour intensive long-term care institutions. Depending on the situation, caregivers help the elderly dress, wash, eat, and/or use toilets. The difference between care residences and nursing homes is that the former provides relatively more privacy and independent space to maintain the service quality and ensure that residents' mental health needs are taken care of.

## 3. Research Method

### 3. 1. Questionnaire survey

The main purpose of this study was to explore the spatial functions of elderly residences in Taipei, Taiwan. The two dimensions of spatial and user investigation were based on the construction of the basic data. In the dimension of spatial investigation, a field study and questionnaire were conducted whereas in the dimension of user investigation, those aged 65 years or older and

living in Da-Long and Zhu-Lun elderly houses and their caregivers were targeted. The questionnaire covered five categories: management satisfaction, spatial-planning satisfaction, facility-usage satisfaction, activity-arrangement satisfaction, and service satisfaction. A total of 103 questionnaires were distributed and collected (recovery rate: 100%). The questionnaire was designed to explore the factors that determine the manner in which older people chose residences and to satisfy the design needs of elderly housing.

**3. 2. Information on selected cases**

The Da-Long and Zhu-Lun elderly residences are located in Taipei. Both sites are keen to provide the elderly with a dignified, healthy, independent, and active "high-quality environment with local care." They are dedicated to implementing the policy of "aging in place" through the provision of personal, consistent, accessible, and integral services. Accommodation fees per month range between 600 and 950 USD, and catering fees per month are between 133 and 140 USD. Da-Long Elderly Residence was established in 2013, and the fee is higher than that of Zhu-Lun Elderly Residences. Regarding scale, Da-Long can accommodate 60 single and 10 double rooms. Each normal bedroom is more than 33m<sup>2</sup> ensuring that

the elderly live in a spacious room. Relevant facilities are also provided to those with vision problems or religious needs. The site offers various recreational and barrier-free facilities for the elderly. To support long-term activities, night patrols and medical services are provided (see Figure 1).

Zhu-Lun Elderly Residences was established in Taipei in 2005. It is relatively small and can accommodate 39 single and 6 double rooms. It provides human-oriented services, such as complete health care and prevention, living facilities, spiritual care, and social participation and interactions. It also holds festive events and outdoor trips using community resources to enable older adults to live comfortably.

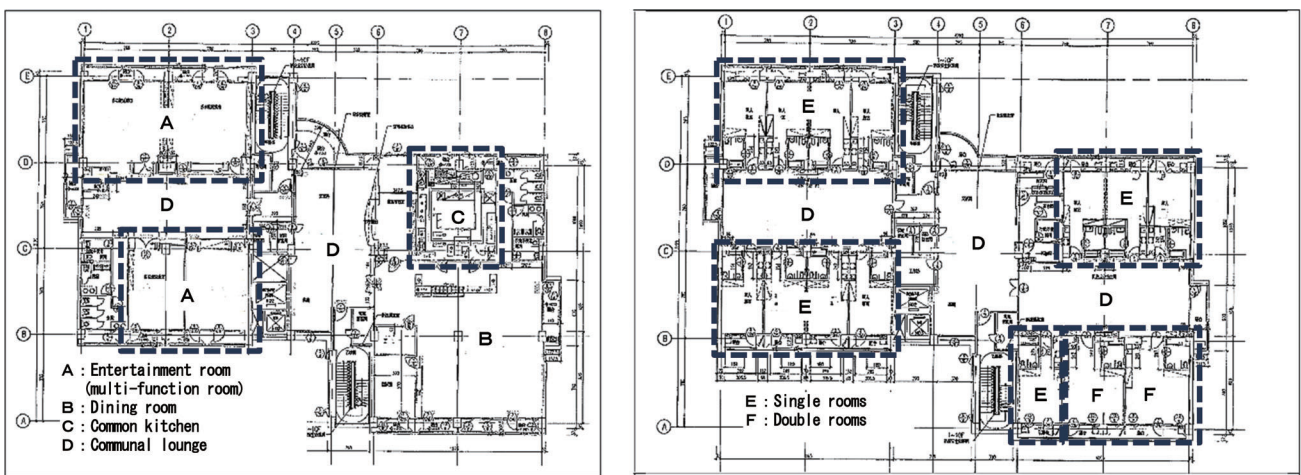
**3. 3. Distribution of questionnaires**

Questionnaires were distributed between March 10 and April 13, 2016. Around 53 and 50 questionnaires were distributed to Da-Long and Zhu-Lun elderly residents, respectively. In total, 103 valid questionnaires were collected.

**4. Results and Discussion**

**4. 1. Participants**

Approximately 53 participants belonged to



\*Zhu-Lun Elderly Residences does not provide floor plans for the privacy and safety of its residents.

Figure 1. Floor plan of Da-Long Elderly Residents (left: 4th floor, right: 5th floor)



Da-Long Elderly Residence, accounting for 51.5% of the sample population whereas 50 participants were from Zhu-Lun Elderly Residences, accounting for 48.5%. Among them, 55.3% there were males (57) and 44.7% were females (46). Overall, 96.1% residents were aged 65 years or older, 45.6% (47

residents) were aged 75–84 years, 33% (34 residents) were aged 65–74 years, 17.5% (18 residents) were aged 85 years or over, and 3.9% (4 residents) were aged 55–64 years (see Table 3).

Regarding educational background, 46.6% of participants (48 residents) had graduate degrees,

**Table 3. Participants' basic information**

Question number	Item	Da-Long Elderly Residence	Zhu- Lun Elderly Residence	Subtotal	Percentage	Total
Statistics		53	50	103	100%	100%
Age	Under 55 years	0	0	0	0.0%	100%
	55–64 years	2	2	4	3.9%	
	65–74 years	20	14	34	33.0%	
	75–84 years	23	24	47	45.6%	
	Over 85 years	8	10	18	17.5%	
Gender	Men	20	37	57	55.3%	100%
	Women	33	13	46	44.7%	
Educational background	Under junior high school level	7	37	44	42.7%	100%
	High school	21	11	32	31.1%	
	Graduate	19	29	48	46.6%	
	Master's degree	6	10	16	15.5%	
	Doctor of Philosophy	0	0	0	0.0%	
Marital status	Single	2	1	3	2.9%	100%
	Married	39	48	87	84.5%	
	Divorced	1	0	1	1.0%	
	Wedlock	0	0	0	0.0%	
	Widowed	10	1	11	10.7%	
	Others	1	1	2	1.9%	
Occupational categories before retirement	Engineering	10	7	17	16.5%	100%
	Business	11	16	27	26.2%	
	Agriculture	3	2	5	4.9%	
	Education/research	14	11	25	24.3%	
	Self-employed	10	6	16	15.5%	
	Others	5	8	13	12.6%	
Main economic sources	Savings	16	16	32	31.1%	100%
	Rental income/investments	1	5	6	5.8%	
	Work	6	7	13	12.6%	
	Pensions	19	17	36	35.0%	
	Supported by children	11	5	16	15.5%	
	Others	0	16	16	15.5%	
Time spent in the elderly residence	Less than 1 year	16	16	32	31.1%	100%
	1.1–4 years	35	23	58	56.3%	
	4.1–6 years	2	6	8	7.8%	
	6.1–8 years	0	0	0	0.0%	
	8.1–10 years	0	4	4	3.9%	
	10.1 years and over	0	0	0	0%	

42.7% (44 residents) were under junior high school level, 31.1% (32 residents) had graduated from high school, and 15.5% (16 residents) had a master's degree. In terms of marital status, 84.5% of the participants (87 residents) were married; 10.7% (11 residents) had lost their partners; and 2.95% (3 residents) were divorced, single, or other category. In the occupational categories before retirement, over 50% of the participants had business- and education-related work, of which 26.2% (27 participants) had a business and 24.3% (25 participants) were involved in educational work. Around 16.5% (17 residents) performed engineering tasks whereas 15.5% (16 residents) were self-employed. Only 4.9% of the participants (5 residents) were involved in agriculture. This was probably because those with business or educational jobs were more capable of affording the expenses of elderly residences.

Among the main economic sources, about 65% of the participants used pensions and savings for living expenses, of which 35% (36 residents) depended on pensions and 31.1% (32 residents) relied on savings. This indicates that most elderly people in Taiwan are financially independent. Around 15.5% (16 residents) were supported by their children, and 12.6% (13 residents) were financed by their work. A total of 5.8% of the participants (6 residents) were supported by rental income and investments. In terms of the time spent in elderly residences, 56.3% of the participants (58 residents) had lived there for one to four years, 31.1% (32 residents) had stayed for less than one year, and 7.8% (8 residents) had lived there for between four and six years. Only 3.9% of the participants (four residents) had stayed for more than eight years.

#### 4. 2. Factors influencing participants' choice of elderly residences

The opinions of the participants revealed that when older people consider elderly residences, the

most important factor is social care service ( $M = 6.17$ ), followed by service provided by doctors ( $M = 6.10$ ), emergency buttons in the bedroom ( $M = 6.08$ ), shuttle bus service ( $M = 6.07$ ), and emergency exit without barriers ( $M = 6.04$ ). In other words, participants from the selected elderly residences were concerned about physical and mental care, medical care, and safety protection (see Table 4).

The results showed that the least important factor for the participants was the method of operation ( $M = 4.81$ ). Furthermore, all participants had divergent opinions on this factor ( $SD = 1.41$ ). They also showed concerns about the size of the residence ( $M = 5.02$ ), availability of a leisure room ( $M = 5.19$ ), common kitchen ( $M = 5.23$ ), and accommodation fees ( $M = 5.24$ ). Those who chose to live in elderly residences cared less about operations and the size probably because these factors were not directly related to their own health and care services.

Generally, some factors showed relatively consistent opinions and low standard deviations, such as fire safety ( $SD = 0.86$ ), social care ( $SD = 0.91$ ), doctors in clinics, emergency exits without barriers ( $SD = 0.93$ ), and shuttle bus services ( $SD = 1.05$ ). Other factors, however, had high standard deviations, such as mode of operation ( $SD = 1.41$ ), art and craft classes ( $SD = 1.36$ ), outdoor trips ( $SD = 1.32$ ), library and reading rooms ( $SD = 1.28$ ), and festive celebrations ( $SD = 1.21$ ).

From the individual site's point of view, it was surprising that all Da-Long residents were concerned about whether speeches would be arranged ( $M = 6.36$ ), followed by emergency buttons in the bedroom ( $M = 6.25$ ), social care services ( $M = 6.17$ ), emergency exits without barriers ( $M = 6.06$ ), and fire safety ( $M = 6.04$ ). Participants' concern regarding speeches arrangement was possibly because their occupational categories before retirement were Education and research. However, residents from Da-Long cared less about the method of operation ( $M = 4.64$ ), accommodation fees

Table 4. Statistical results of the preferences of the participants regarding elderly residences

Question items	Da-Long Elderly Residence		Zhu-Lun Elderly Residence		Total Mean	Total Standard Deviation
	Mean	Standard Deviation	Mean	Standard Deviation		
1. Location	5.38	0.86	5.64	1.13	5.50	1.15
2. Mode of operation	4.64	0.87	4.98	1.44	4.81	1.41
3. Size (number of rooms)	4.98	0.85	5.06	1.24	5.02	1.13
4. Accommodation fee	4.96	0.88	5.54	1.08	5.24	1.23
5. Fire safety	6.04	1.02	5.90	0.88	5.97	0.86
6. Emergency exit without barrier	6.06	0.98	6.02	0.93	6.04	0.93
7. Communal lounge	5.38	1.02	5.00	1.08	5.19	1.18
8. Reading room	5.32	1.09	5.26	1.34	5.29	1.28
9. Medical room	5.75	1.08	5.24	1.24	5.50	1.17
10. Common kitchen	5.25	1.01	5.22	1.25	5.23	1.26
11. Sink in the bedroom	5.55	1.12	5.28	1.18	5.42	1.24
12. TV in the bedroom	5.92	1.16	5.42	1.23	5.68	1.15
13. Emergency button in the bedroom	6.25	1.14	5.90	1.20	6.08	1.07
14. Care sensor in the bedroom	6.06	1.08	5.88	1.19	5.97	1.12
15. Speeches	6.36	0.98	5.70	1.10	6.04	6.94
16. Festive events	5.21	1.13	5.56	1.06	5.38	1.21
17. Talent classes	5.15	1.20	5.38	1.37	5.26	1.36
18. Outdoor trips	5.26	1.03	5.74	1.23	5.50	1.32
19. Visiting doctor arrangement	5.98	1.17	6.22	0.86	6.10	0.93
20. Social care service	6.17	1.19	6.18	0.86	6.17	0.91
21. Nutritionist services	5.77	1.09	6.12	0.97	5.94	1.10
22. Shuttle bus service	5.94	1.10	6.20	0.96	6.07	1.05

( $M = 4.96$ ), size ( $M = 4.98$ ), leisure activities ( $M = 5.15$ ), and festive event celebrations ( $M = 5.21$ ). Fifty participants from Zhu-Lun Elderly Residences considered whether they received services from doctors ( $M = 6.22$ ), followed by shuttle bus services ( $M = 6.20$ ), social care services ( $M = 6.18$ ), nutritionist services ( $M = 6.12$ ), and emergency exits ( $M = 6.02$ ). They cared less about operations ( $M = 4.98$ ), communal lounge ( $M = 5.00$ ), size ( $M = 5.06$ ), common kitchen ( $M = 5.22$ ), and medical rooms ( $M = 5.24$ ). Compared with the participants from the other site, they were more concerned about their own health and safety, such as social care services and emergency exits. They did not consider factors that were not directly related to themselves, such as operations and size.

#### 4. 3. Preferences for choosing the elderly residence

Regarding the location of the elderly residence, more than 60% of the participants (66 residents)

believed that convenient places in the city center should be chosen for the site. Around 24 participants (23.3%) believed that a location near a hospital in a metropolitan area would be an ideal site for an elderly residence. Some participants wanted elderly residences to be located in quiet areas near the city (8.8%) or scenic areas near the countryside (3.8%). From this point of view, they believed that proximity to the city center and medical convenience were more important than quality of life and scenery (see Table 5). Participants from Da-Long Elderly Residence preferred traffic convenience while Zhu-Lun residents preferred hospital proximity. The reason for the selection of Da-Long Elderly Residence is possibly because it is located on the border between Taipei City and New Taipei City, making it convenient for participants across the cities. In addition, there are a number of hospitals surrounding the Zhu-Lun Elderly Residence, so it is

possible that many of its residents chose this residence for that reason.

For the preferable type of elderly residence business model shown in Table 6, elderly residents had the lowest mean ( $M = 4.81$ ) and highest standard deviation ( $SD = 1.41$ ) among all the factors. This means that the method of operation was the least divergent factor among participants. More than 45% of the participants (48 residents) believed that the GOPR mode was better, but 35% of the participants (36 residents) preferred the registered government-owned and publicly run modes. Approximately 10.7% (11 residents) wanted elderly residences to be operated by non-profit organizations, and 7.7% of the participants (8 residents) thought that the private sector was the best choice. That is, the participants preferred GOPR and registered government-owned and

publicly run operation modes than non-profit and private sector modes, implying that they felt more confident about the sites run through the GOPR mode (see Table 6). Participants from Da-Long preferred the registered GOPR mode whereas those from Zhu-Lun preferred the registered government-owned and publicly run mode.

Regarding the size of the elderly residence (number of rooms), 44.7% of the participants suggested that the number of rooms should be below 50 while 43.7% believed that the number should be between 51 and 100. Seven participants (6.8%) preferred between 101 and 200 rooms, and five participants (2.9%) believed that the number of rooms should be above 301. Participants from these sites tended to prefer small-scale operations (see Table 7). Compared with the participants from Zhu-Lun Elderly Residences, those from Da-Long

**Table 5. Factors influencing participants' choice of an elderly residence**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Convenient location in the city	38	28	66	64.1%
Near a hospital in the metropolitan area	10	14	24	23.3%
Quiet area near the city	3	6	9	8.8%
Scenic area near the countryside	2	2	4	3.8%
Others	0	0	0	0%
Total	53	50	103	100%

**Table 6. Type of elderly residence business model that is preferable**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Government-owned and publicly run	15	21	36	35.0%
Government-owned but privately run	26	22	48	46.6%
Private sector	3	5	8	7.7%
Nonprofit organizations	9	2	11	10.7%
Others	0	0	0	0%
Total	53	50	103	100%

**Table 7. Size (number of rooms) of elderly residence that is preferable**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Below 50 rooms	19	27	46	44.7%
Between 51 and 100 rooms	25	20	45	43.7%
Between 101 and 200 rooms	6	1	7	6.8%
Between 201 and 300 rooms	2	0	2	1.9%
Above 301 rooms	1	2	3	2.9%
Total	53	50	103	100%

Elderly Residence preferred between 51 and 100 rooms. Participants from Zhu-Lun Elderly Residences, however, preferred below 50 rooms. This is a possible reason for the difference in room preferences, as Da-Long Elderly Residence has 70 rooms, whereas Zhu-Lun Elderly Residence has 45 rooms (see Table 1).

With regard to monthly accommodation fees, more than 60% (68 participants) of the residents believed that the cost should be less than NT\$20,000 every month whereas 37 participants (35.9%) believed that charging below NT\$15,000 every month was reasonable. However, 30.1% of the participants (31 residents) were of the opinion that the charge should be between NT\$15,001 and NT\$20,000. Overall, participants from both sites preferred flexibility in the fees. Higher number of residents from Da-Long would like to pay a fee between NT\$15,001 and NT\$20,000. Evidently, hardware construction in Da-Long was newer and more modern and spacious than that in Zhu-Lun, explaining why residents from the former residence could accept higher accommodation fees (see Table 8).

Regarding the planning of residential spaces, more than 70% (71.9%, 73 residents) of the

participants believed that reasonable emergency exit (43.7%) and fire safety planning (28.2%) were important. In other words, 45 participants thought that emergency exits were crucial, and around 29 participants considered fire safety vital. Regarding physical and mental health, 20.4% of the participants (21 residents) believed that good ventilation and lighting designs were important. From this perspective, they considered escape routes and fire safety to be more important than whether they could enjoy fresh air and light (see Table 9). Da-Long residents preferred better ventilation and lighting, but Zhu-Lun residents preferred emergency exits and fire safety.

Regarding favorite spaces in the public setting, more than 65% of the participants (67 residents) considered communal lounge (34%) and entertainment rooms (multi-function rooms; 31.1%). Approximately 35 participants believed that the communal lounge was the most favorable space for elderly residences, followed by entertainment rooms (32 participants). Regarding mental health, 23.3% of the participants (24 residents) believed that a reading room was favorable. This means that the participants perceived the communal lounge and entertainment room as more important than

**Table 8. Affordable fees for the GOPR elderly residence**

Monthly fee	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Less than NT\$15,000	12	25	37	35.9%
NT\$15,001–NT\$20,000	19	12	31	30.1%
NT\$20,001–NT\$25,000	20	12	32	31.1%
NT\$25,001–NT\$30,000	2	1	3	2.9%
Above NT\$30,001	0	0	0	0%
Total	53	50	103	100%

**Table 9. Aspects of spatial planning for elderly residences**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Reasonable emergency exit planning	18	27	45	43.7%
Fire safety planning	11	18	29	28.2%
Good ventilation and lighting design	18	3	21	20.4%
Good sound insulation design	5	2	7	6.8%
Others	1	0	1	0.9%
Total	53	50	103	100%



the reading and medical rooms (see Table 10). In Da-Long, residents preferred entertainment and reading rooms, but in Zhu-Lun, residents preferred having a communal lounge.

More than 65% (69 residents) of the participants believed that emergency call buttons were important. Of the total participants, 23.4% (24 residents) considered televisions to be the most important facility, followed by care sensors in the bedroom (8 residents). In other words, participants from both sites believed that emergency call buttons were more vital than televisions, care sensors, and kitchenware (see Table 11). Participants from Da-Long wanted televisions but those from Zhu-Lun preferred emergency call buttons.

Regarding recreational events, approximately

65% (66 residents) of the participants chose festive gatherings (34.9%, 35 residents) and art activities (30.1%, 31 residents) as their favorites. Regarding the dimensions of spiritual fulfilment and physical and mental health, 15 participants (14.6%) supported academic speech and outdoor trips. The results showed that residents of both sites liked festive gatherings and art activities rather than academic speeches and outdoor trips (see Table 12). In Da-Long, participants liked to give academic speeches, but those in Zhu-Lun preferred art and craft activities and outdoor trips. However, they all liked to engage in festive gathering activities.

More than 50% (51.5%, 53 residents) of the participants expressed that care by social workers was their preferred service. In addition, it was the most important factor considered by the

**Table 10. Favorite space in elderly residences in a public space setting**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Communal lounge	16	19	35	34.0%
Reading room	13	11	24	23.3%
Medical room	1	4	5	4.9%
Entertainment room (multi-function room)	18	14	32	31.1%
Others	5	2	7	6.7%
Total	53	50	103	100%

**Table 11. The most important facility in the bedroom**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Kitchenware	0	2	2	1.9%
Television	20	4	24	23.4%
Emergency call button	29	40	69	67.0%
Care sensor	4	4	8	7.7%
Others	0	0	0	0%
Total	53	50	103	100%

**Table 12. Favorite activities of the participants**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Academic speeches	11	4	15	14.6%
Festive gathering activities	18	18	36	34.9%
Talent classes	12	19	31	30.1%
Outdoor trips	7	8	15	14.6%
Others	5	1	6	5.8%
Total	53	50	103	100%

participants when they moved into their residences. Around 35 participants believed that companions for clinics should be arranged, followed by nutrition counseling (9 participants) and shuttle bus service (5 participants). Regarding the dimensions of physical and mental health and spiritual companions, the participants believed that care provided by social workers and companions for clinics was the most favorable service. Under these circumstances, participants thought that after retirement, they would be more likely to feel lonely; therefore, they believed that care and companions are important (see Table 13). Da-Long residents were more concerned about the care provided by social workers than those from Zhu-Lun, but Zhu-Lun residents were more concerned about companionclinics and nutrition counseling.

Regarding the duration of their stay, more than 50% (53 residents) concerned considerate activities and care services to be the most important factors. However, they believed that social-worker care was also significant when choosing a residence. Around 21.3% of the participants (22 residents) thought that good spatial planning was vital, followed by reasonable

accommodation fees (18.5%, 19 residents) and good-quality facilities (7 residents). Regarding the dimensions of physical and mental health and spiritual companions, participants believed that considerate activities and care services were important, meaning that participants from these sites focused on considerate activities, care services, and excellent space planning (see Table 14). In Da-Long, residents were more concerned about considerate activities, good care services, and space planning. However, in Zhu-Lun, residents thought that reasonable accommodation fees were essential.

The survey helped us understand what residents consider important in terms of services and space planning. For example, reasonable emergency-exit and fire-safety planning, and the installation of emergency call button, television facility in the rooms, care by social workers, companion for the clinic, and considerate activities and services were found to be the most preferred services and plans. The installation of spaces and facilities to receive these services is also shown to be very important in the planning. As talent classes and festive gathering activities are favorite activities for residents, there is a need to plan a

**Table 13. Preferred services provided by the elderly residence**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Companion for the clinic	10	25	35	34.0%
Nutrition counseling	1	8	9	8.7%
Care by social workers	39	14	53	51.5%
Shuttle bus service	3	2	5	4.9%
Others	0	1	1	0.9%
Total	53	50	103	100%

**Table 14. Most important aspects during the stay**

Options	Da-Long Elderly Residence	Zhu-Lun Elderly Residence	Total	Percentage
Cheap accommodation fees	9	10	19	18.5%
Good space planning	14	8	22	21.3%
Good-quality facilities available	1	6	7	6.8%
Considerate activities and services	27	26	53	51.5%
Others	2	0	2	1.9%
Total	53	50	103	100%

space for these activities, socialization, entertainment (multi-function room), communal lounge, and so on.

Table 14 shows that considerate activities and services are the most important aspects of both residences, and they also provide human-oriented services, such as health care and prevention, living facilities, spiritual care, and social participation and interactions. Even though accommodation fees at the Da-Long Elderly Residence are higher than at the Zhu-Lun Elderly Residence, residents consider good space planning more important than finding cheap accommodation.

Da-Long Elderly Residence is larger than Zhu-Lun Elderly Residence, and each normal bedroom is more than 33m<sup>2</sup> ensuring that the elderly live in a spacious room. Relevant facilities and space are also provided to those with vision problems or religious needs. The site offers various recreational and barrier-free facilities for the elderly. To support long-term activities, night patrols and medical services and space are provided. These considerate activities and services are also considered connected to good space planning.

## 5. Conclusions

Against the backdrop of the aging problem that is worsening in Taiwan, the question of whether the spatial quality of an elderly residence and its usage can fulfill the requirements of the elderly is worth addressing. This study aimed to examine the spatial function of senior care homes in Taiwan to determine the selection criteria of the elderly while choosing these homes. Findings revealed the preferences of the Taiwanese elderly and factors that influence their choice of senior care homes.

For example, the following details were ascertained through the survey. A total of 103 participants from both Da-Long and Zhu-Lun elderly residences considered care by social workers to be the most important factor, followed by visiting

doctor arrangements, emergency call buttons in the bedroom, shuttle bus services, and emergency exits. That is, they were concerned about physical and mental health, care services, and safety. Other factors that did not draw the participants' attention were size, communal lounge, common kitchen, and accommodation fees. In other words, they were less concerned about these factors, probably because they were not directly relevant to their own health care or body protection.

In terms of location preference, more than 60% of the participants believed that the site should be located in a convenient location in the city. After moving in to senior care homes, more than 65% of the participants considered communal lounge and entertainment rooms (multifunction rooms) as essential spaces. In addition, more than 70% of the participants believed that rational escape routes and fire safety plans were important. In bedroom facilities, preferred emergency call buttons. Regarding favorable recreational activities, liked festive gathering activities and art and craft activities. More than half of the participants liked to be served by social workers, and this was also the most important factor valued by them. During their stay, more than 50% participants were concerned about considerate activities and care services.

This study makes a significant contribution to the literature because the findings contribute to additional design, operation and care services factors that can be considered at the early stage of elderly house planning. Future studies might consider participants' moods and sense of insecurity by simultaneously conducting in-depth interviews and questionnaires. Before completing the questionnaires, a good relationship between researchers and participants should be established.

Although the survey was conducted in 2016, we assume that the environment and other factors surrounding the elderly have changed. For example, it is believed that in recent years, after

the Corona virus pandemic, the desired content of the residential environment has also changed. We would like to elucidate this as a future issue. In addition, this study suggests that future research should target non-GOPR residences and those who belong to cities other than Taipei, to make the research more comprehensive.

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## 7. Disclosure

The authors declare no conflicts of interest.

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