The Preferred Attributes of the Elderly Condominium: Baby Boomer Generation

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ABSTRACT

This study aims to examine the preferred attributes on elderly condo for Thai baby boomer generation, by applying conjoint analysis and using a triangulation method in a research inquiry. The preferred attributes in this study consist of 1) location, 2) physical design, 3) room design, 4) size or number of room, and 5) facility. The data collection tool called "board game" was invented to draw a visual mimic of the combination of attributes. Data with the purposive sampling method for 304 respondents were collected. The results of conjoint analysis revealed that location was the most important attribute (27.174%), followed by facility (21.483%), physical design (21.082%), room design (19.504%) and room size (10.757%) respectively. The preferred profile cards of respondents were condominiums being located near the park or nature with two bedrooms, and having the following characteristics, namely the physical designs being natural shady, the room designs being airy with enough nature light, and the parks and outdoor gyms facilities well equipped in the condo project. After performing cluster analysis with utility scores, four groups of elders were found, namely 1) recreation 2) elderly preparation 3) nature lover 4) home style.

KEYWORDS: Conjoint analysis, Segmentation, Baby boomer, Condominium, Elderly

Introduction

The number of older persons (defined as aged 60 and over) in Thailand has grown rapidly and will continue to do so in future decades. Since 1960 the number of older people in the Thai population has increased seven-fold from approximately 1.5 million to 10.7 million by 2015 or 16% of the total population. Future population ageing will occur even more rapidly with the number of older persons projected to increase to over 20 million by 2035, at which point they will constitute over 30% of the population.

Moreover, within the next few years the population born in 1946-1964, a baby

boomer generation. approaches retiring age, while those living alone or only with a spouse has increased steadily since 1986. Taken together these two factors indicate that the share of Thais 60 and older that live independently doubled. By 2014, 9% of older persons lived alone and 19% lived only with their spouse. So household size declined steadily from just over 5 persons in 1986 to 3.6 in 2014. Baby Boomers are looking for smaller and nicer homes. It causes a need for more elderly condominium (Anderson, 2002).

Local developers have already started elderly condominium projects, such as Jin Wellbeing in northern Bangkok. (CBRE, 2018). It implied the rising demand of elderly condominium. However, according to the forecast of demand-supply and sold

rate of Bangkok condominium market, this market will be over supply. This contradict phenomenon shows that the existing condominiums do not fulfil the needs of the elderly. (Figure1)

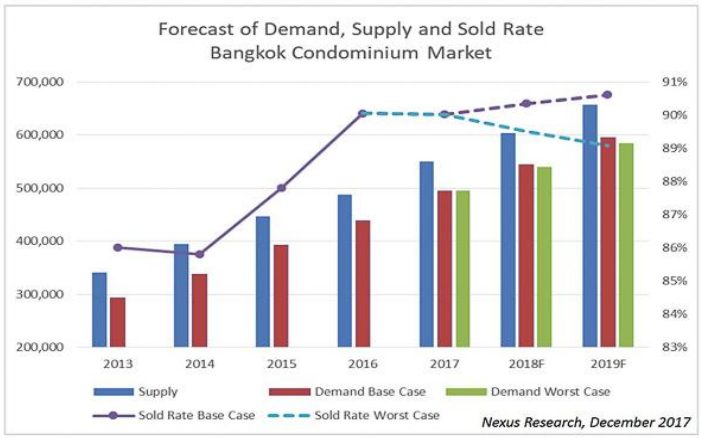

Figure1 Forecast of demand, supply and sold rate of Bangkok condominium market

Purposes

This paper focuses on examining the preferences attributes and segmentation of elderly condominium among Baby Boomer generation. The results of this study should shed the light to the understanding of condo developers and highlight the preferred attributes of elderly condo.

Benefit of Research

The Developer will be able to develop or design the condominiums which serve the need of the Baby Boomers.

Literature review

1. Conjoint analysis

Conjoint Analysis (CA) enables marketing researchers in determining trade-offs among attributes of a new product (Rao & Pilli, 2014). The objective of a CA is to

identify the combination of attributes that gives the highest utility to users and to determine the relatively more important attributes in the form of their contribution to the total utility derived.

Real estate research studies have employed CA to measure the preference since estate products are complex. CA founded in many real estate research studies (table1)

Table 1 Real estate research studies employed CA

No	Author	Content
1	Wai & Wei , 2010	Investigating the preferred housing attributes among Malaysian elderly by using choice-based questionnaire and conjoint analysis.
2	Lan, 2011	Examining housing preference of young household in the capital city Hanoi with focus on condominiums in new urban areas by using conjoint analysis.
3	Valkama, 2014	Using conjoint analysis to determine customer willingness to pay for environmental initiatives in hotels in Helsinki
4	Bond, 2000	Using conjoint analysis to determine the importance of land contamination and other relevant property attributes in purchasers' buying behavior of remediated residential land.
5	Pieng & Pieng & Gan, 2012	Using CA to evaluate the preferences of middle-high income earners for newly designed high-cost residential property attributes in their purchase decision.

2. Elderly Condominium attributes

According to the literature reviews, there are condominium attributes covered both common property such as facilities, physical design, location (Joseph & Hollett, 1992; Wai & wei, 2014; Yang, 2011; Azmi & Aziz, 2017; Abidoye et al., 2016) and personal property such as room design, size of room.

The researchers summarized 7 important attributes (Table2).

Table 2 Attributes from literature review

	Attributes/ Authors	1 Joseph & Hollett ,1992	2 Wai &wei, 2014	3 Iman et al., 20010	4 Iman et al., 2012	5 Yang, 2011	6 Dynia, 2006	7 Azmi & Aziz, 2017	8 Abidoye et al., 2016
1	Dwelling size	✓	✓	✓	✓	✓	✓		✓
2	location	✓	✓	✓	✓	✓	✓	✓	✓
3	Physical design		✓			✓		✓	✓
4	Facilities		✓			✓	✓	✓	
5	Design room				✓			✓	
6	Developer Reputation				✓				
7	Neighborhood								✓

Research framework of this study, thus, was based on the 7 attributes and hypothesized that prefer attributes of condo are composed of the attributes of dwelling size, location, physical design, facilities, room design, developer reputation, neighborhood. Table 3 explained the operational definition of the 7 attributes

Table 3 Operational definition

Definition	Meaning
Dwelling size	Room size, measured by number of bedrooms. Size standard for one-bedroom is approximately 30-35 square meter and 2 bedrooms is approximately 36-45 square meters.
Location	Location is the environment around the condominium such as supermarket, workplace, park, hospital and good transportation for convenient in everyday life.
Physical design	The physical design is included the overall building design and materials. It consisted of design for elderly such as light along the hall way, grab bar around the building and friendly floor with no slippery make them feel more safety. Next is green design or natural design makes them feel more relax. The last one is good security system around the project such as CCTV, 24 hours security guard and access card control.
Facility	The facility is a room or a place to do activities with everybody in condo such as fitness for elder, park with jogging track, recreation room, small garden and swimming pool.
Room design	The room design includes a design room for elder such as wide door for wheel chairs, emergency call within the room, toilet and floor with no step. Next is airy room design with enough nature light and the modern room design with keycard.
Developer reputation	It is an organization or a company that is recognized as reliable and acceptable in the society
Neighborhood	Neighbors are the people who live together in a condo.

Research Process

Five stages of research methods are as follows.

Stage1 Do a literature review to find the elderly condominium attributes.

Stage 2 Bring the data from stage 1 to make a questionnaire and an in-depth interview with 20 informants using data validation called a triangulation. Then analyze the data to remove the attributes that are less important. Thus, there are five important attributes consisting of location, design room, physical design, dwelling size and facilities as shown in Figure 2.

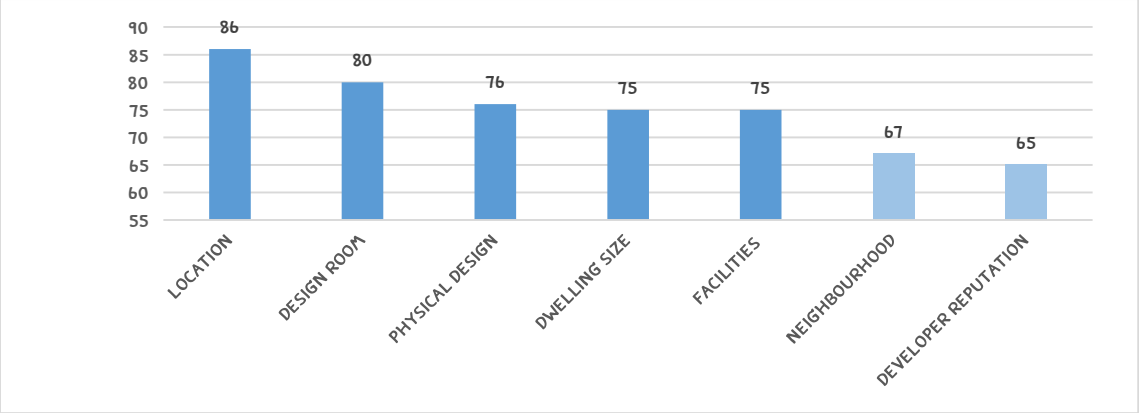

Figure 2 Important attributes from in-depth interview

Stage 3 Do an in-depth interview with another 20 informants to remove less important levels of each attribute. Create 16 Profile Cards from the summary of the attributes and levels for this research (Table 4) with the Orthogonal Design method (Figure 3).

Stage 4 Create a questionnaire and design the symbol group for each level on the profile card with a graphic program and make an innovative board game for gathering data.

Stage 5 Collect data in public places such as parks, hospitals, libraries, supermarkets, work places and government offices by asking the respondents to rank all 16 profile cards in the board from the most to the least preference. Finally, the researchers processed all the collected data with the Conjoint Analysis and performed the Segmentation by SPSS program, then presented the results of the research and discussion

Table 4 The attributes and levels used in this study

	Attribute	Level
1	Location	Near hospital
		Near supermarket
		Near transportation
		Near park
2	Physical design	Suitable for the elderly.
		Green design or natural design
		Good security
3	Room design	Material and design room for elderly
		Airy design with enough natural light
		Modern design room with a key card
4	Room size	1 bedroom
		2 bedrooms
5	Facility	Gym for elderly with first aid
		Recreation room
		Park with outdoor gym

Population and Sample

The population of this research were well elderly with experience of buying a low rise condominium or expected to buy a low rise condominium (height not over 23 meters) who were born between1946-1964 and the age of 56-74 years old.

In this study, a conjoint analysis technique was used to analyze the attribute preferences and the triangulation method was use to validate the attributes gathered from reviewing the literatures and interviewing the samples of 20 respondents and finally collecting the data with purposive sampling method for 304 respondents.

Instruments for data collection and analysis

The questionnaire for collecting data was divided into 3 parts.

1. Screening questions.
2. Demographic data of respondents.
3. Ranking the 16 profile cards from the most to the least preference in the board shown in Figure

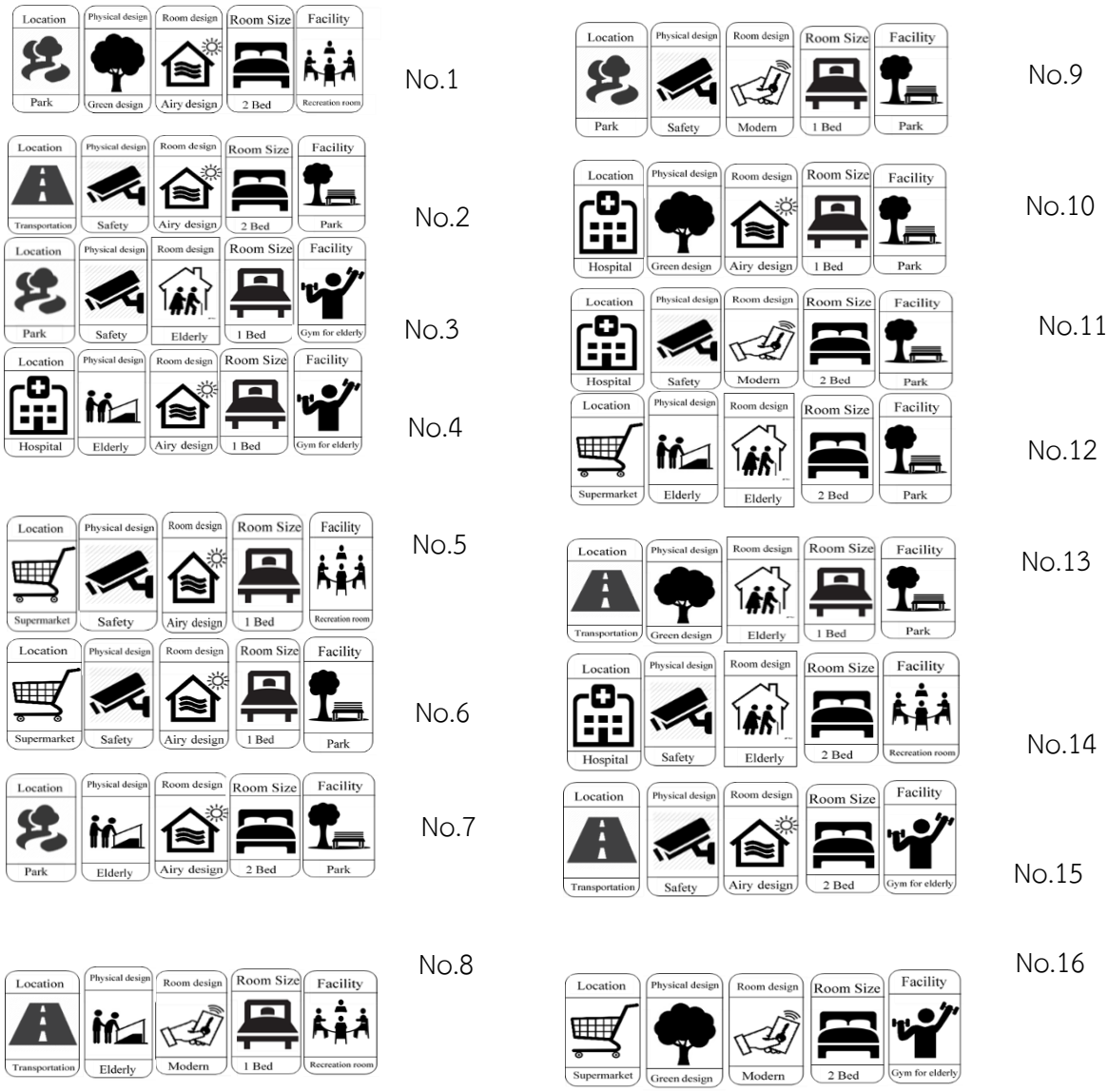

Figure 3 The Combination of Attributes of 16 Profile Cards

Data Analysis

1. Summary of the profile of sample group

Most of the 304 respondents were women (61.5%) at the age of 56 to 61 years old (46.4%) graduated Bachelor's Degree (56.3%). They were retired (39.8%) and had income from descendants and pension about 15,001 - 45,000 Baht/month or about 500 – 1,500 USD (31.6%). They were married (53.9%) and living at home (29.6%) with their families (63.5%) in suburb (48.4%) and traveling by private cars (66.1%).

2. Analysis of the significance of each condominium attribute

The analysis of the significance of each condominium attribute showed that ***location*** was the most important attribute as it was the final destination for most

retirees. They wanted to spend their edge of life with good friend, surrounded with the safety and friendly environment, situated at a place with easy access to do daily or pertinent activities such as a supermarket or a hospital.

The second significant attribute is ***facility***, which helps maintain a good health and well-being and develop their mind. Facility in this research included 1) gym for elderly with first aid, 2) recreation room, such as, a yoga class, a Sumba class or even a chess game, 3) park with outdoor activity. Most elderly wanted to have their recreation rooms equipped with many activities. Park and gym come in second.

The third one is ***physical design***, which was consisted of green environment, good security and Elder-Friendly design. When people get older they are looking for something that can help them and make their life easier, such as lights along the hall way, friendly floor without slippery, landing places and grab bar around the building.

Next was a ***room design*** which was consisted of eco-friendly room design with airy breeze on a day time and cozy feeling at night. Elderly, therefore, did not have to spend much money on electricity and air-conditioner. Moreover, a modern room design with a key card made them feel more safe and more convenient to be tracked if they were away for too long.

Last one was the ***room size.*** In this research, it did not matter if it was one or two bedrooms. The important attributes related to the room were the functions of the room and the affordability to buy a room. (Figure 4)

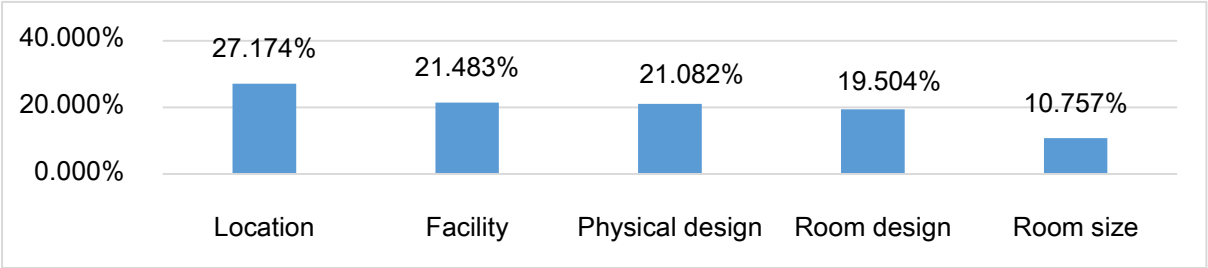

Figure 4 Importance of each elderly condominium attributes

3. Conjoint utility model

The total utility score of the condo attributes was positive. It means that most respondents were in favor, the higher the value. the better. Negative utility score means that most of respondents were in less favor but it was not a bad attribute as shown in Table 5

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Table 5 Total utility score of elderly condominium

Attribute	Level	Utility Estimate	Std. Error
1. Location	Near hospital (L1)	-0.163	0.276
	Near supermarket (L2)	0.011	0.276
	Near transportation (L3)	-0.126	0.276
	Near park (L4)	0.277	0.276
2.Physical design	Suitable for the elderly. (D1)	0.213	0.249
	Green design or natural design (D2)	-0.128	0.249
	Good security (D3)	-0.085	0.213
3.Room design	Material and design room for elderly (I1)	-0.255	0.249
	Airy design with enough natural light (I2)	0.235	0.213
	Modern design room with keycard (I3)	0.020	0.249
4.Room size	1 bedroom (R1)	-0.015	0.159
	2 bedrooms (R2)	0.015	0.159
5.Facility	Gym for elderly with first aid (F1)	-0.334	0.249
	Recreation room (F2)	0.418	0.249
	Park with outdoor gym (F3)	-0.084	0.213
Constant		**8.486**	**0.184**
Pearson's R = 0.751 Kendall's tau = 0.600 Sig = 0.000			

4. Profile card ranking and total utility score

When trading-off five attributes in a conjoint analysis by ranking preference and utility score, it was found that the most favorite card on the profile card set was the profile card no.1. It included location near a park or nature with green design surrounding building. There were 2

bedrooms with airy room design and had a recreation room within the condo project.

5. Summary of the respondents' segmentation from questionnaire

The segmentation of the respondents by using cluster analysis and utility scores was divided into four groups as follows (Table 6).

Group 1 "Recreation group." This group was elderly who were mostly business people and office employees, at the age of 62-71 with income more than 100,000 Baht/month or more than 3,333 USD. They preferred the recreation room in condominium located near the hospital, supermarket and good transportation. Physical design was suitable for the elderly and good security. They focused on recreation room the most.

Group 2 "Elderly preparation". Most of them were government officers at the age of 62-66 years old with income around 15,000- 45,000 Baht/month or about 500-1,500 USD. They preferred a modern room design with a keycard and a gym with first aid. The condo also should be at the location near supermarket and good transportation.

Group 3 "Nature lover" consisted of age 72-74 years old. Most of their income came from their children about 15,000 Bath/month or 500 USD. They have been retired for a certain period of time. They focused on the nature, the convenience, and the helpful design for elder and supermarket around the area.

Group 4 "Home style" included people of 56-61 and 72-74 years old, with the income around 70,001-100,000 baht /month. (2,333 - 3,333 USD). They used to live in a house and were looking for some places like a home. They preferred the green design with convenience store nearby. The condo should provide a gym for elderly with first aid and the recreation room in the condo project.

Table 6 Attributes and levels for each group of elder

Attribute	Level	1	2	3	4
1.Location	Near hospital	**0.14**	0.04	0.22	0.12
	Near supermarket	**0.14**	**0.17**	0.05	**0.17**
	Near transportation	**0.13**	**0.17**	0.17	0.07
	Near park	0.08	0.14	**0.26**	**0.15**
2.Physical design	Suitable for the elderly.	**0.14**	**0.16**	**0.12**	0.04
	Green design or natural design	0.06	0.03	0.05	**0.24**
	Good security	**0.12**	0.12	0.06	0.09

3. Room design	Material and design room for elderly	**0.07**	0.04	**0.15**	**0.09**
	Airy design with enough natural light	**0.09**	0.16	0.12	**0.09**
	Modern design room with have keycard	**0.07**	**0.19**	0.05	**0.08**
4.Room size	1 bedroom	0.05	0.04	0.07	0.05
	2 bedrooms	0.05	0.06	0.05	0.06
5.Facility	Gym for elderly with first aid	0.02	**0.15**	0.07	**0.12**
	Recreation room	**0.24**	0.08	**0.09**	**0.10**
	Park with outdoor gym	0.16	0.05	**0.10**	0.09

Conclusion

This research was carried out in order to determine the preferred condominium attributes for the elderly. The findings showed important implications for the developers to respond to the needs of the target group, the baby boomer group.

Closes to nature was the first factor for elderly condominium that developer had to be concerned because it promoted their physical and mental health. This study confirmed the findings of the study by Joseph & Hollett (1992); Yang (2011); Iman et al. (2012). Surrounding the elderly condo had to clean, safe, natural and convenient. The supermarket or convenience store should not be far from the condo, consistent with the study by Dynia (2006); Iman et al. (2012).

Moreover, recreation activities created social gathering atmosphere, making new friends and enjoying their everyday life. It helped improve a quality of their life. Therefore, recreation room with many activities should become an important consideration in future elderly condominium planning and design, seem to follow on from Yang (2011); Dynia (2006).

The physical design should be suitable for elderly such as elevators, good lightings, wide doorways and hallways for their convenience and safety. Furthermore, the airy room design with enough natural light was favorable because it saved energy and money, consistent with findings of the study by Iman et al. (2012). Last, size of the room depended on the ability to afford and the number of family members.

Gratitude is one of the most important intrinsic values of Thai society. Sending their parents to nursing home or even elder condominium is something new but it is

slowly changed. The new developers have to promote the new mindset of better care for their loving ones with the slogan, such as "We care as much as you care" to promote your project, or "Happiness, healthy, hygienic system, high security and caring for elderly with reasonable price". It will open the new developer an opportunity to have a share in Thailand elderly condominium market.

From the study, it could be said that most elderly have spent most of their lifetime working. They are most likely looking for a place to stay after retirement in decent environment, friendly to their lifestyle and peaceful. As we can say

"*The most simple things can bring the most happiness".*

Recommendation

The result of this study indicated that the condominium design preferred by the elderly should have a recreation room within the project. Location is near a park and the supermarket. Room design is airy with enough nature light and with room keycard. The physical design is suitable for elderly. Condominium with 2 bedrooms is more favorable.

The developers who want to develop existing condominium for the elderly should focus on "Elderly Preparation" and "Nature Lover" groups by adding equipment that provides convenience and safety for elderly.

For the new developer who wants to develop new condominium especially for the elderly should focus on "Recreation" gand "Home Style" groups. They are high income person. The warm atmosphere like home and recreation activities can attract them to buy new residence.

Future study

1. Recreation group is characterized with the high income people in various age. They want to buy a condominium because they want friends and neighbors. Each individual enjoys different recreational activities. The researchers could focus on recreation activities for elderly in their future studies.

2. Most elderly focus on the physical design of residence for their age group. This research studied the overall physical design, not in detail in response to their needs. The next research should focus on detail of the design in order to meet the needs of the elderly with the most cost effective.

Research limitation

The sample of this study was from the cross-sectional data. The data were analyzed for a certain period of time. When time changed, preferences of the elderly might change accordingly due to the progress of technology, Innovation and life style.

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