

Modeling Design and Management of Residential Community for Enhancing Elderly Well-Being in Thai Cultural and Spiritual Environments

Porntip Ruentam

Faculty of Architecture Urban Design and Creative Arts,
Mahasarakham University, Thailand
porntip.r@msu.ac.th

ABSTRACT

 This research presents factors related to environmental perceptions, residential community, and the design of spiritual and healing environments, which affect the elderly Thai population. The research revealed that their needs were identified as 1) the requirements of general facilities and activities, 2) requirements of facilities related to health and security, and 3) the requirements of facilities related to physical exercise. The results show that the characteristics of the elderly have a direct effect on a variety of requirements needed in the residential community. From observing and interviewing three case studies, the concept of the spiritual environment was necessary for the elderly Thais. The result led to formulating appropriate policies in design and management of the residential community to enhance the quality of life, both physically and mentally, of elderly Thais.

Keywords: *elderly, spiritual environment, environmental design, residential community*

INTRODUCTION

Globally, the United Nations (2002) reported the number of people more than 60 years old is expected to increase to two billion by 2050, making global aging a concern for countries both rich and poor. Thailand is a country facing the situation of an increasing senior population. Due to modern medical practices and better public health policies the resulting death rate of Thai population is decreasing. The yearly report of 2012 (The Thailand Nation Elderly Committee, 2012) indicated that the elderly population (60 years and above) will be 19.1%, 26.6% and 32.1% of the Thai population in

2020, 2030, and 2040 respectively. This leads to the question of how will the Thai government cope when Thailand reaches this situation.

Globally, the United Nations (2002) reported the number of people more than 60 years old is expected to two billion by 2050, making global aging a concern for countries both rich and poor. Thailand is a country facing the situation of increasing senior population. According to modern medical science and better public health science at present together with the lack of appropriate planning in population policy, resulting death rate of Thai population is decreased. In the yearly report of Thai elderly situation, 2012

(The Thailand Nation Elderly Committee, 2012) resulted that Thai elderly (60 years and above) will be 19.1%, 26.6% and 32.1% of the Thai population in 2020, 2030, and 2040 respectively. The result led to a question that how can the Thai government will cope when Thailand reach the situation. However, the National Committee on the Elderly under the Ministry of Social Development and Human Security Thailand (2009) defined a framework for Thai elderly as follows:

- The elderly persons with good living standards are: physically and mentally healthy; happy family, social care, enabling and friendly environment; stable security, access to appropriate welfare and service; lead a valuable life with dignity, independence and autonomy, and serve as central reliability and participate in the family, community and social activities; keep access to data, information and news.
- The family and the community serve as a strong institution and key sector of efficient support for the elderly.
- The welfare and service systems shall ensure a high-quality life and full participation of the elderly both in their family and community.
- All parties and sectors shall take part in the welfare and service system accessible and usable by the elderly where safeguards are needed to protect the elderly as a group of consumers.
- The proper undertakings and settings shall be performed to enable the elderly persons who face difficulties and in need of care to be recognized and included as members of their community in all arenas. (sic)

The framework leads to the next question: where will the large populations of elderly live after their retirement while facing the inevitable degeneration of physical health? They will need assistance from others when they have to go hospital or clinic. These two factors indicate that residential communities for enhancing elderly well-being is the answer.

The researcher was committed to conceptualizing a place that has all the facilities to meet the needs of elderly Thais. These needs include: personnel providing health care, good social and spiritual management, a place that is a part of a happy society and a place that is convenient and safe until their final days.

The objective of this research is to answer the question; What should the place be like? To study the impact of elderly Thais' characteristics and the resulting requirements of environmental design and management of residential communities the researcher used the structural equation modeling (SEM).

In order to achieve this objective, this research identified components of the elderly's requirements and their measurement; developed an SEM that demonstrates the relationships between characteristics, requirements, and willingness to join a residential community; recommended policies for design and management of residential communities that enhance elderly well-being within a Thai context.

REVIEW OF LITERATURE

Elderly

The National Committee on the Elderly under the Ministry of Social Development and Human Security Thailand (2009) indicated that the elderly are not a vulnerable nor social burden, but are able to take part as a social development resource. Thus they shall be entitled to recognition and support by the family, community and the state to lead a valuable life with dignity and sustain their healthiness and living standards as long as possible'.

World Health Organization; WHO (2016) has stated on their website that most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person, but like many westernized concepts, this does not adapt well to the situation in Africa. While this definition is somewhat arbitrary, it is many times associated with the age at which one can begin to receive pension benefits. At the moment, there is no United Nations (UN) standard numerical criterion, but the UN agreed cutoff is 60 years and up to refer to the older population.

Spiritual and healing environment

WHO (1946) had given an initial definition of "health" in the common description that does not include spirituality. In 1998, the definition was amended to include a dynamic state of four-dimensions - physical, mental, social, and spiritual well-being.

Spirituality was defined by Meraviglia (1999) is “the experiences and expressions of one’s spirit in a unique and dynamic process reflecting faith in god or a supreme being: connectedness with oneself, others, nature, or god; and an integration of the dimensions of mind, body, and spirit”. This concept has been positively associated with quality of life in the older adults (Gaskamp et al., 2006).

In the Thai cultural context, the spiritual well-being of the elderly means a social being who is respected for their seniority, has reverence for sacred items, and believes in Buddha. Moreover, it is also related to faith in religious activities such as pouring water on the hands of revered elders and asking for blessing, participating in rituals, meditation, vows, and destiny.

Barrera-Hernandez et al. (2014) concluded that a spiritual environment consists of the relationships between the material and intangible aspects that shape a positive spiritual environment, personal well-being, sustainable behaviors, and environmental quality factors.

Cambridge dictionary (2016) defined “spiritual home”, as “a place where you feel you belong, although you were not born there, because you have a lot in common with the people, the culture, and the way of life”. This definition is in accordance with the objective of this study by focusing on a place or community which enhances the well-being of the elderly within Thai cultural and spiritual environments.

Jonas and Chez (2004) believed an emphasis on healing is a key to the future medical management of chronic illness and the establishment of sustainable approaches in health care. Defined as the process of recovery, repair, and return to wholeness, healing is the foundation for a vision of medicine that integrates diverse approaches from around the world for the alleviation of suffering, the enhancement of well-being and the treatment of chronic illness. Healing is facilitated through the development of proper attitudes and intentions in both the provider and the recipient, use of personal self-care practices, creating healing relationships, applying the knowledge of health promotion and maintenance, and the appropriate integration of complementary and conventional medicine practices.

Nelson et al. (2005) described that “healing environment” is synonymous with the therapeutic environment. The therapeutic environment is one

that is ‘designed to not only support and facilitate state-of-the-art medicine and technology, patient safety, and quality patient care but to embrace the patient, family and care providers in a psychosocially therapeutic environment’.

From the above it could be concluded that the therapeutic or healing environment is a part of the spiritual environment for the elderly.

Environmental Design

Plunz (1982) stated that environment design is the process of addressing surrounding environmental parameters when devising plans, programs, policies, buildings, or products. It can also refer to the applied arts and sciences dealing with creating the human-designed environment. These fields include architecture, geography, urban planning, landscape architecture, and interior design. Physical surroundings that provide the setting for human activity, ranging in scale from buildings and parks, green space to neighborhoods, the local community and are all part of environmental design and defined by the physical and constructed environment in which people live, work, and recreate on a day-to-day basis. In addition, environmental design is concerned with the way these places are experienced and used, as well as other aesthetic elements that contribute to the quality of community environments.

Residential Community

Paul et al. (2012) stated that a community is a social unit of any size that shares common values, or that is situated in a given geographical area (e.g. a village or town). It is a group of people who are connected by durable relations that extend beyond immediate genealogical ties, and who mutually define that relationship as important to their social identity and practice.

WHO Regional Office for Europe (2008) defined ‘a community residential health facility as a non-hospital, community-based mental health facility that provides overnight residence for people with mental disorders’. The facilities can be as follows: supervised housing, unstaffed group home, group homes with some residential or visiting staff, hotels with day and night staff, hostels and homes with 24-hour nursing staff; halfway houses, and therapeutic

communities. Both public and private not-for-profit and for-profit facilities are included.

Perkins et al. (2004) stated in a textbook of 'building type basics for senior living' that common facilities within a skilled-nursing facility serving all of the nursing units may include: multipurpose room, coffee shop/snack bar, gift shop, library, outdoor terraces and recreation areas, art/activity, clinic, rehabilitation. The book also stated that, in adult communities landscaped and natural areas should be developed for walking, contemplation, golf, lawn sports, shuffleboard, gardening activities, fishing, and other recreational activities.

RESEARCH METHODS

In this research, Thai elderly was defined by age of 60 years and above, together with health condition of the elderly were classified to 5 levels including (1) strong, can help themselves everything, (2) sometimes need some assistance, (3) mainly need assistance, (4) need assistance all the times, and (5) unable to move and need assistance all the times.

Using the review of literature as a basis the concept of spiritual well-being and healing environment would be checked and compared between the mentioned literatures and existing cases in Thailand. Then, the concluded result would be used in the questionnaire design.

In this research the elderly's physical requirements will considered be in terms of environmental design.

Case Studies

Using three existing elderly community projects in Thailand the research process began with observations and interviews in terms of management processes and environmental designs.

The three cases include:

Case study one:

A private project of 600 single houses, 3 condominium buildings and facilities related to the elderly. The project is suitable for; the elderly with family, elderly patients with chronic diseases, people who need special care or need rehabilitation. The project is located in Chang-Lek, Bangsai, Ayutthaya.

Case study two:

A government foundation project consisting of 163 rooms in an eight storey building and 300 rooms in eight buildings, each building containing six-stories and having facilities. This project is suitable for the elderly at the beginning of their retirement, living alone, strong, and who can help themselves. The project is located in Pathumwan, Bangkok.

Case study three:

A religious foundation project of 164 rooms/beds in five two story buildings with nursing ward facilities. The project is suitable for low-income elderly, elderly with amnesia, and the elderly who are unable to help themselves. The project is located in Sampran, Nakhon Pathom.

The managers or management staffs of the three case studies were selected and interviewed at their work place places on the topics of management, environment, facilities, and activities in their facilities.

Using information gained from the observations and interviews, the facilities and activities were classified and defined as an itemized list. The itemized list was summarize then related to the reviewed theories and literature. This determined the questionnaire design. In an overview of the three case studies, the researcher found spiritual environments a necessity for the elderly. For example, in case study one, there is a weekly activity of taking the elderly to a temple for celebrating and making merit on Buddhist holy days. The majority of the elderly (more than 80%) who joined the activity were female.

In case study two, there is a praying room in each building but the rooms were too small with limited space to serve the elderly who wish to pray. Moreover, the facilities were only for the elderly; therefore families were not allowed to use the rooms or stay overnight in the project.

In case study three, a project for low-income elderly, bedrooms were provided for groups of four as a minimum, six and 30 persons. The elderly lacked a spiritual environment, personal space and supervision by a nursing staff.

Questionnaire Design

A questionnaire survey was designed to collect data from a group of elderly Thai, to ascertain the factors or requirements of a residential community. By

referring to the literature review and the case studies the questionnaire was designed. The questionnaire is comprised of three parts. The first part includes 5 questions of general information; gender, age, health condition, education, and economic status. The second part addressed expectations of the requirements within residential communities (30 questions). The last part dealt with elderly's willingness to join a residential community project (3 questions).

In measuring, the first part was measured by frequency (percentage) of the respondents while the second and third parts were measured by a 5-level Likert scale measurement from 'strongly disagree' to 'strongly agree'. The questionnaire items are showed in Table 1.

Validity and reliability

In order to ensure that the items are appropriate for the Thai elderly in this research, interviews were held with five experts who have relevant experience in elderly behaviors and residential communities. The experts reviewed and gave comments as to whether the items were accurate representations to measure the model in this research. They also suggested some items which were more appropriate to be used in the context of the research. This exercise was useful to provide content validity and to ensure that the items were neither ambiguous nor confusing.

Cronbach's alpha was used to evaluate the reliability of the questionnaire. Thirty selected elderly participated in a pilot study to test for reliability. The coefficients for location, activity, and facility were 0.942, 0.953, and 0.850 respectively. The value for all items (Q1-Q30) was 0.964. All coefficients were above 0.7 demonstrated that the questionnaire is reliable (Nunnally, 1978).

Data Collection

Once the questionnaire was designed, an elderly target group was selected using convenient non-probability sampling technique. Most of the respondents were in Bangkok and some were in big cities surrounding Bangkok. The three month survey began in May and concluded in July. The researcher conducted face-to-face interviews explaining details of the questionnaire to ensure the respondents' understanding of the survey.

In total, 550 questionnaires were completed but 19 were discarded due to incomplete and bias responses. As such, 531 were valid and used for analysis in next section.

Exploratory Factor Analysis

The exploratory factor analysis (EFA) with varimax rotation was implemented to determine the construct of underlying factors of environmental design and management of the residential community in Thailand. Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy = .973 (KMO > 0.7) (Tabachnik and Fidel, 2001), Bartlett's test of sphericity has a significant value = .000 (less than .05), Approx. Chi-Square = 15384.567, df = 435. Factor loading values that are less than 0.5 would be eliminated.

The EFA output showed three factors of the 30 items (Q1-Q30) were grouped including factor 1: Q2, Q4, Q6, Q7, Q8, Q9, Q13, Q14, Q15, Q16, Q17, Q23, Q26, Q28, Q29, and Q30; factor 2: Q1, Q3, Q5, Q10, Q11, Q12, and Q25; factor 3: Q18, Q19, Q20, Q21, Q22, Q24 and Q27. Furthermore, the reliability of the questionnaire in terms of the 3-factors was assessed on the basis of Cronbach's alpha coefficient. According to Nunnally (1978), Cronbach's alpha coefficients of 0.7 or higher are recognized as acceptable values. The values of the coefficient were acceptable for all 3 factors, ranking from 0.928 to 0.964 and the value of all items (Q1-Q30) was 0.975. The outputs for all above are showed in Table 2.

In table 2 the EFA shows that the three main factors chosen indicate that the requirements of an elderly facility must include: 1 'activities and general facilities', 2 'exercises', and 3 'health and security' respectively.

Table 1: Questionnaire items

Factors		Items
Elderly's characteristics		CH1: Age
		CH2: Health
Elderly's requirements	Location	Q1: Calm and natural place
		Q2: Near religious places
		Q3: Near hospitals
	Facility	Q4: Health food shop
		Q5: Convenience shop
		Q6: Beauty salon
		Q7: Laundry service
		Q8: Cleaning service
		Q9: Building maintenance service
		Q10: 24-hour security guards
		Q11: 24-hour medical center
		Q12: care center for the elderly
		Q13: Sauna and spa
		Q14: Training center for improving quality of life
		Q15: Library
		Q16: Computer and internet room
		Q17: Karaoke lounge
		Q18: Swimming pool
		Q19: Fitness
		Q20: Outdoor stadium
		Q21: Garden and outdoor patio
		Q22: Indoor activities
		Q23: Religious place
		Q24: Sidewalks and bike lanes
		Q25: Fence and gate guards 24-hour
	Activity	Q26: Religious activities
		Q27: Recreational activities
		Q28: Important day activities
		Q29: Training activities
		Q30: Excursions programs
Willingness		W1: Interesting in the community
		W2: Willingness to live in the community
		W3: Willingness to recommend the community to others

Table 2: Factor loading of the EFA and Cronbach's alpha

Item	Factor loading			Cronbach's alpha			
	1	2	3				
Q28	0.78	0.22	0.206	0.964	0.975		
Q29	0.766	0.178	0.302				
Q14	0.757	0.19	0.278				
Q15	0.752	0.203	0.187				
Q30	0.748	0.11	0.355				
Q2	0.714	0.451	0.086				
Q26	0.713	0.341	0.192				
Q13	0.709	0.226	0.331				
Q9	0.697	0.346	0.271				
Q4	0.694	0.297	0.324				
Q16	0.673	0.109	0.548				
Q23	0.658	0.385	0.186				
Q17	0.65	0.075	0.578				
Q8	0.64	0.349	0.248				
Q6	0.636	0.204	0.473				
Q7	0.63	0.349	0.399				
Q11	0.189	0.853	0.153	0.928		0.975	
Q10	0.171	0.831	0.188				
Q12	0.384	0.741	0.095				
Q3	0.239	0.735	0.357				
Q25	0.154	0.705	0.424				
Q1	0.36	0.676	0.351				
Q5	0.447	0.566	0.394				
Q19	0.252	0.303	0.807	0.940			0.975
Q18	0.386	0.234	0.783				
Q20	0.376	0.366	0.682				
Q22	0.34	0.483	0.621				
Q21	0.362	0.472	0.606				
Q24	0.355	0.508	0.577				
Q27	0.438	0.414	0.553				

Research Hypotheses

Research hypotheses were formulated in order to understand the elderly's expectations of their residential community. Once the EFA had been done, the three factor requirements of activities, exercises, health and security in residential communities were treated as mediating variables or mediators (Xiong et al., 2015) between characteristics and the willingness. The three required factors defined by the elderly's needs and would have an effect on their willingness to join the residential community. These factors are presented in a conceptual research model (see Fig. 1). The research hypotheses were developed as follows:

- H1: The elderly's characteristics will have an influence on the factor of activities and general facilities.
- H2: The elderly's characteristics will have an influence on the factor of exercises.
- H3: The elderly's characteristics will have an influence on the factor of health and security.
- H4: the factor of activities and general facilities will have an effect on the elderly's willingness to join the residential community.

H5: The factor of exercises will have an effect on the elderly's willingness to join the residential community.

H6: The factor of health and security will have an effect on the elderly's willingness to join the residential community.

RESULTS

Descriptive results

Profile of the respondents totals 531 data of the Thai elderly were analyzed in terms of descriptive results and shown in Table 3

Structural equation model

Byrne (2010) stated that a structural equation model (SEM explains influences or effects between latent variables on other latent variables in the model. In this research, once the EFA had been done, a latent variable named 'elderly's characteristics' with its 2-observed variables, CH1 (age) and CH2 (health)

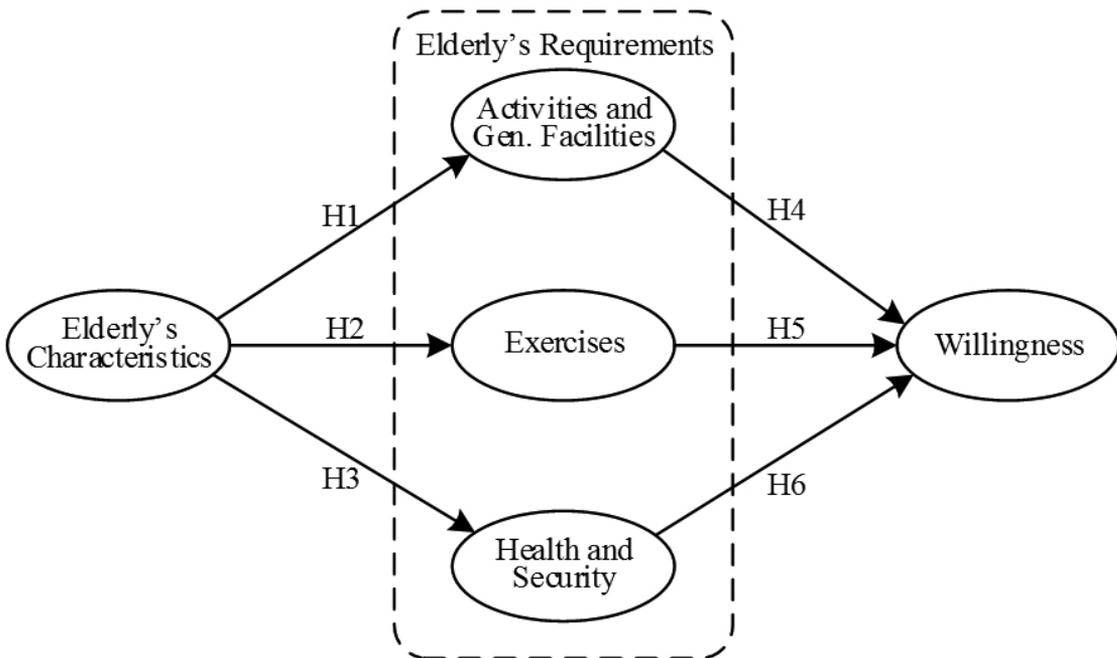


Figure 1: Conceptual Research Model

Table 3: Descriptive Results

Description	Frequency	Percentage
Gender		
- Male	220	41.4%
- Female	311	58.6%
Age		
- 60 - 65 yrs.	265	49.9%
- 66 - 70 yrs.	154	29.0%
- 71 - 75 yrs.	79	14.9%
- 76 - 80 yrs.	27	5.1%
- More than 80 yrs.	6	1.1%
Health condition		
- Strong, can take care of themselves everything	282	53.1%
- Sometimes need some assistance	194	36.5%
- Mainly need assistance	40	7.5%
- Need assistance all the time	11	2.1%
- Unable to move and need assistance all the time	4	0.8%
Education level		
- No education	24	4.5%
- Primary school	62	11.7%
- High school	155	29.2%
- Bachelor degree	257	48.4%
- Higher bachelor degree	33	6.2%
Economic status (last income, before retirement)		
- Less than 10,000 Baht/month	93	17.50%
- 10,000 to 30,000 Baht/month	223	42.0%
- 30,001 to 50,000 Baht/month	95	17.9%
- 50,001 to 100,000 Baht/month	85	16.0%
- More than 100,000 Baht/month	35	6.6%

were added to the model as an exogenous variable. One more latent variable named 'willingness' with its 3-observed variables; W1 (interesting in the community), W2 (willingness to live in the community) and W3 (willingness to recommend the community to others) were added to the model. Then, the model was analyzed and the results showed the model was fit by Chi-square = 1730.49, df = 525, p = .06 (>.05), CMIN/DF = 3.296 (<3.5), GFI = .843 (>.8), RMSEA = .066 (<.08) (Arbuckle, 2011) as showed in Figure 2.

Then, the research hypotheses were tested using

the outputs of the model as implemented above. Table 4 provided the results of the test, each factor and variables have significant effects (p-values < .05) between each other.

The results of the SEM in Figure 2 and Table 4 showed path coefficients in the standardized estimate of regression weight and all hypotheses (H1, H2, H3, H4, H5, and H6) were significantly supported at the .05 level. Only one observed variable 'age' (CH1) was not significantly reflected the elderly's characteristics in the model.

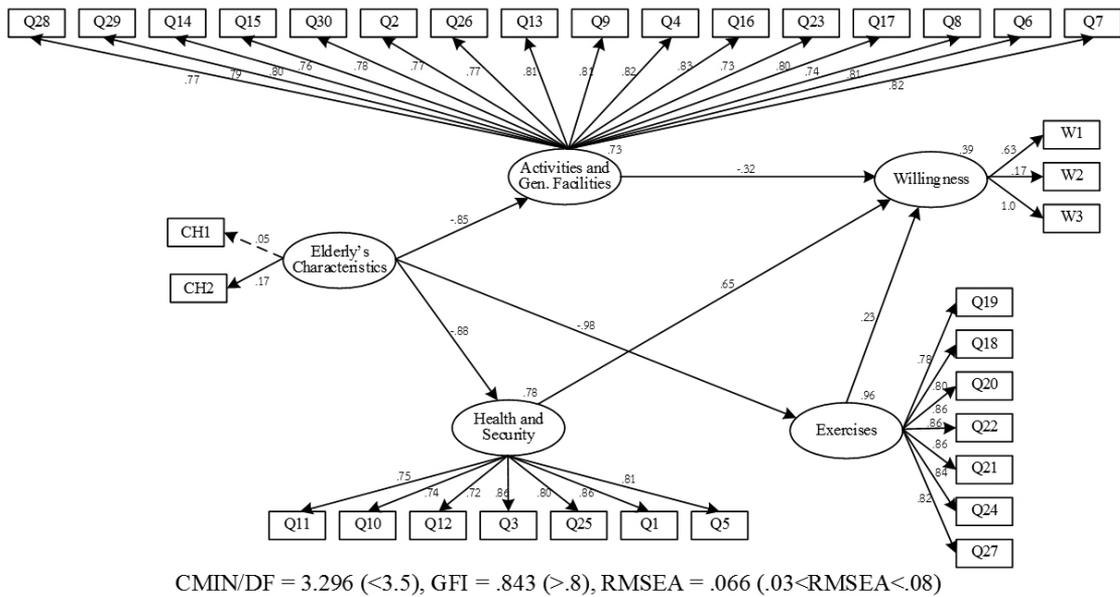


Figure 2: Structural equation model

Table 4: Results of the tested hypotheses

Hypothesis	Relationship	Standardized Path Coefficient	Result	Significant (p)
H1	elderly's characteristics ---> activities and general facilities	-.85	Supported	***
H2	elderly's characteristics ---> exercises	-.98	Supported	***
H3	elderly's characteristics ---> health and security	-.88	Supported	***
H4	activities and general facilities ---> willingness	-.32	Supported	***
H5	exercises ---> willingness	.23	Supported	.016
H6	health and security ---> willingness	.65	Supported	***

Note: *** = p < .001

DISCUSSION

As described in section 3.5, the 'elderly's requirement factors were classified as activities and general facilities, exercise and health, and security. In

the factor of activities and general facilities all 16 variables were similarly noted to the factor (.731 to .827). The top 5 variables were the requirements of a computer and internet room (Q16; .827), a health food shop' (Q4; .821), laundry service (Q7; .816),

building maintenance service (Q9; .815), and a beauty salon' (Q6; .815) .

In the factor of exercises there was 7 variables which were similarly reflected to the factor (.784 to .864) The highest 5 reflected variables were the requirements of a garden and outdoor patio' (Q21; .864), an outdoor stadium' (Q20; .858), indoor activities (Q22; .857), 'sidewalks and bike lanes (Q24; .845) and recreational activities (Q27; .822)

In the factor of health and security there was 7 variables which were similarly reflected to the factor (.720 to .857) The highest 5 variables were the requirements of calm and natural place (Q1; .857), 'near hospitals' (Q3; .857), 'convenience shop' (Q5; .813), 24-hour security guards (Q25; .796), and a 24-hour medical center' (Q11; .748)

In the SEM (Fig. 2), the elderly characteristics had a negative effect on the exercises (-.98), the health and security (-.88), and the 'activities and general facilities (-.85). It meant that those who were in poor health, needed assistance or were unable to move did not need all the mentioned facilities and activities

In the other hand, those who were healthy and agile needed the facilities and activities. The fact that the activities and general facilities had a negative effect on the willingness (-.32), meant those who required the activities and general facilities were not willing to join residential communities.

However the exercises factors having a positive effect on the willingness (.23), meant that the elderly who required the exercises may be willing to join a residential community.

Finally, the health and security determinant had a positive effect on the willingness (.65), and means that those who required the health and security factor were willing to join residential communities.

CONCLUSION

This research studied factors relating to environmental perception, residential community, and design of the spiritual and healing environment, which effects the elderly Thai perceptions and requirements. All of the participants in this study were from a metropolitan area. The profile of the respondents is showed in Table 3.

The three case studies of existing elderly community

projects in Thailand were observed and interviewed in terms of management processes and environment designs. It was found that the concept of spiritual environments was necessary for the elderly as discussed in previous section (case studies).

According to the results of this research, it could be concluded that elderly Thais with strong health desired the facilities and activities in residential communities. The five most requirements in terms of the activities and general facilities are the following: a computer and internet room, a health food shop, laundry service, building maintenance service, and a beauty salon respectively.

The five most requested requirements in terms of the exercises were a garden and outdoor patio, an outdoor stadium, indoor activities, sidewalks and bike lanes, and recreational activities.

In terms of the health and security requirements the following five factors were indicated: calm and natural places, near hospitals, convenience shops, 24-hour security guards, and a 24-hour medical center.

Concerning the aspect of the willingness to join the residential community, the factor which had the highest effect on the elderly would not be the activities and general facilities or the exercises but the health care and security in the residential community.

Suggested policies for enhancing the well-being of the elderly Thais would include:

- The Thai government should prepare to cope with the increase of the elderly population in the near future as defined in the framework (section 1) of The National Committee on the Elderly under the Ministry of Social Development and Human Security Thailand (2009).
- The residential community should provide for the elderly who are healthy
- In order to foster a willingness of Thai elderly to join a residential community, the facilities should focus on health and security, calm and natural places, locate near hospitals and offer convenience shops, 24-hour security guards, and a 24-hour medical center.
- The elderly who are in poor health, those unable to move or need assistance all of the

time, should be provided with places and facilities that focus on health care such as nursing centers or special hospitals.

- The concept of the spiritual environment should be concluded in the design and management of the residential community.

Recommendations for further research should focus on the culture, mentality, and spirituality of the elderly Thais in their residential communities. According to the outcome model (Figure 2), management and spaces for activities should be provided on the recommended issues.

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