

# An empirical study to explore the cognition and needs with health community for the elders in Taiwan

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Accepted 19<sup>th</sup> December, 2020.

**Abstract.** Along with social progress and medicine technology developed, the birth rate and the death rate is decreasing, thus the aging society has become a major issue. The current status in Taiwan is located in remote agricultural areas; the population of elders is a problem more serious than before, the elders' population are over 14%, moreover, some are in the metropolitan area and consumption center with concentrated population, for traffic convenience and governance, major construction must consider elders needs and convenience. This empirical study was done through sampling and questionnaire administration. After three months a total of 500 questionnaires were responded to. The research purpose aimed at understanding elders for building a healthy community of cognitive importance levels and their correlation with needs. The statistical analysis results showed elders for building a healthy community of various dimensions of cognition and need may not be the same, cognitive important aspects or themes, but is not necessarily consistent with their needs. In addition, knowledge and needs of the elderly and their background factors, especially education levels and health status. This includes cognitive importance or needs perspective and their education and health relevance of statistical significance. In addition, indicated by open-ended questions to answer, to build community awareness on the importance and need of health, "Life and health" are still issues of concern to elders. More worthy of our attention is that the need on the dimensions, showing the "lifelong learning" cognition and need, including more senior arts and leisure courses and organize community group activities and courses.

**Keywords:** Elders, health community, cognition of importance, needs assessment.

## INTRODUCTION

Population aging is an important global issue, a complex and multi-faceted issue, and a change in social trends while presenting opportunities and challenges that also provide new ways for us to seek active aging experiences, where increased life and qualitative improvements are equally important, and concerns about the health of older persons. It should not be limited to the care of the elderly who are sick or dysfunctional, and to improve the overall quality of life and well-being of the elderly, the concept of "successful aging" is used to measure the adaptation of older persons to their old (Jiang, Chen, Hong, Lin, and Wu, 2009)

With social progress, medical development, birth rate

and mortality rate decreasing year by year, the proportion of Taiwan's elderly population is increasing significantly, the aging society has become a major issue, the resulting phenomena and problems are gradually emerging. It is an urgent challenge for the government to maintain the quality and dignity of old age life. Moreover, it also establishes sound social welfare and health policies as Taiwan move from an "aging society" to an "aged society" and a "super-ageing society".

The growing population of Taiwan is worrisome, and many studies indicate that the most important problem for the elderly in the future is "health", followed by "economic sources" and "care problems" in the case of illness.

Health and the economy are the most significant needs of the elderly at present. To meet the advent of the aging society, the future of Taiwan's social welfare policy will have to tilt to the elderly, the proportion of the relevant budget for the elderly will be more and more than before (He, Lin, Dai, and He, 2016)

With the higher elder-dependency ratio, the economic needs and support burden of the elderly population on the working population will increase. Due to the rapid increase of human aging and the extension of life expectancy, traditional social welfare not only faces new challenges but also shows new opportunities for reform (Wu and Jain, 2010)

A healthy community can be seen as an idea or objective to promote the health of the community through targeted arrangements, to create a healthy living environment in which the government can play a leading role in health promotion activities. Its main purpose is to emphasize the focus of public health, should change the personal life patterns, to establish healthy communities, in order to implement the purpose of health promotion.

## LITERATURE REVIEW

### The problem of population

According to the United Nations World Health Organization definition, the elderly population aged 65 and over is called an aging society when the proportion of the total population reaches 7%, 14% is an old age society, and if 20% is called an ultra-old society. There are 23 townships in Taiwan with an elderly population of more than 20%, which is considered an ultra-old community, of which Pingxi District of Xinbei City is the township with the largest elderly population in the country, reaching 25.8%.

The World Health Organization has developed the conceptual framework of active aging since 2002. The concept is defined as the process of improving the quality of life of the population in old age and achieving the most appropriate health, social participation and security. It currently has become the international organization recommended the world, the formulation of the elderly health policy of the main reference framework. For health, participation and security as the three basic principles, in addition to emphasizing lifelong learning and the cultivation of personal ability, more emphasis on social participation and community interaction (Lu, 2012).

### The concept of the health community

The health community is the concept of a healthy city. The purpose of the plan implemented by WHO since 1986 is to integrate health policies and urban policies, promote the physical and mental health of the people and identify with the living environment, whether it is necessary to

improve the environment, public health services and community building education, to achieve health and places for all by the government and the private sectors. For implementing health promotion, WHO started a series of healthy city plans campaigns, hopefully by the implementation of the campaign could improve the city's problems, and through public participation and public-private partnerships together. That can drive this program to enable city dwellers and lead a healthy life. Therefore the urban policy of the period would improve social and environmental development, thus this stage is also known as the new public health phase (the new Health) ( WHO, 1986; Shen, Tsai, Lian, and Zheng, 2015; Hu, 2011; WHO, 1986).

Based on the definition of Hancock and Duhl (1986) and the core meaning of WHO (2002), its operational definition can consist of a variety of components, including the community's living environment, living functions, community support and high participation, meeting needs, diverse resources, economic aspects, culture and characteristics, and health care services. In practice, it includes dozens of related topics such as clean sanitation, adequate lighting and convenient transportation.

### Cognitive theory

Cognition is a concept that has been paid more and more attention to in modern psychology. According to general psychology, cognition is the internal course of individual thinking and problem solving, and it is necessary to understand the relationship between stimulation and stimulation to have an epiphany to solve the problem. The cognitive development theory of Piaget (J. Piaget) sees cognition as the psychological process of understanding or understanding the internal and external environment, and promotes the development of cognition and the development of mental structure by a cognitive operation such as adaptation and assimilation. As far as the information processing theory of cognitive psychology is concerned, cognition refers to the psychological process of the individual receiving and using the information, so the cognitive process includes information input, conversion, storage, retrieval, and application, etc. Cognitive processing patterns can be used to interact from the top-down, down, or both. (Gould, 1988)

Many countries are finding the consequent demand for healthcare services to be a challenge. Social care needs of older people (ie, aged  $\geq 65$  years) are driven by their inability to self-care and live independently, most often assessed by needing help to undertake one or more basic activities of daily living (ADLs) such as bathing, dressing, or toileting. Explicitly taking account of cognitive status and incontinence, both strong predictors of admission to long-term care, produces a more nuanced measure of dependency, and one that is closer to the WHO's concept of intrinsic capacity.

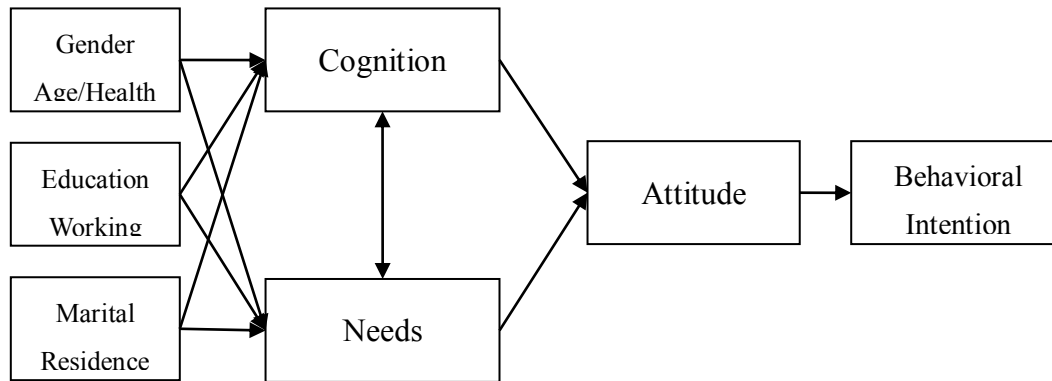


Figure 1. The conceptual framework.

## RESEARCH METHODS

### Conceptual framework

This study is based on an analysis of the current situation, critical problems, motivations and previous literature. As shown in Figure 1, the research conceptual framework includes the predictive variable (predictors) and the result variable (outcomes). The predictive variable is the personal background variable, and the outcome variable includes the cognition and demand of the healthy community. The study's predictive variable, including gender, age, education level, work status, marriage, residence, and health status, can be learned from the research framework (Hancock and Duhi, 1986; Hsu, 2007).

The outcome variables mainly include the cognition and demand situation in the healthy community, and the secondary variables that can be analyzed include living environment, life function, community support and participation, multiple resources, economic conditions, cultural characteristics and health care services. This study combines cognitive and demand-related factors to construct an ideal health Community assessment scheme, forming the conceptual framework of this study, such as the study of the conceptual framework (Figure 1).

### Research hypothesis

Based upon the above description, the research questions of this study are summarized as follows:

1. Do the elders have a good cognition of the overall situation of the health community?
2. Are there differences in cognition of health communities between elders from different backgrounds?
3. What are the needs of the elders for healthy communities?
4. Are there differences in the needs of health communities between elders from different backgrounds?

5. How does the cognition and needs of elders for health communities be correlated?

Moreover based on the conceptual framework and research issues, the present research hypothesis is as follows to test:

H1: Elderly people of different personal backgrounds will have differences in the perception of building a healthy community.

H2: There are differences in the needs of healthy communities for people of different personal backgrounds.

H3: The age of the elderly people is associated with their background concerning the cognitive importance and degree of needs for constructing a healthy community (Miguel, 2017).

### Research design

This study is a field study with a stratified sampling methodology. Conducted by the descriptive and cross-sectional survey is mainly to explore the cognition and needs of elder people to construct health communities in Taiwan. The questionnaire in this study is composed of a structured questionnaire, with a total of 47 questions. There are two main parts including the individual characteristics and demographic data. There are also 40 measurable questions including variables such as environment, facilities, transportation, sanitary, community support, economic and cultural activities, health services, and so on to understand whether an individual's background and traits affect his or her cognition and needs through personal perception.

In this study, SPSS 23.0 and Smart PLS 3.0 statistical software were used to analyze the statistical methods of the questionnaire, including narrative statistics, confidence and effectiveness analysis, and structural equation pattern analysis.

This study established hypotheses and developed a model of a research conceptual framework through the

**Table 1.** Coefficient of Cronbach's alpha.

Factor level	Cognition	Needs
Living environment	0.889	0.807
Life is a work in the right way	0.753	0.892
Community support and high participation	0.880	0.898
Meet your needs	0.890	0.899
Multiple resources	0.891	0.907
Economic aspects	0.845	0.889
Culture and characteristics	0.804	0.822
Health care services	0.880	0.917
Overall	0.886	0.976

measurement of the cognition and needs assessment of health community based on the concept of World Health Organization and the theory of Hancock and Duhl's viewpoint (1986).

The empirical study used a combination of qualitative and quantitative methods to collect primary data and secondary data in a retrospective manner. In addition to standardized open interviews, in-depth interviews of subjects were conducted, and the primary data were collected by the structured questionnaire method.

The statistical analysis software was used to conduct narrative statistical analysis, reliability and validity analysis, basic hypothesis verification, and structural equation modeling (SEM). Basic hypothesis testing included normality, consistency of variation, independence of error, multicollinearity, and so on. Structural equation modeling, also known as path analysis, was used to detect multiple indirect or direct causal relationships among the variables of various hypotheses.

For the instrumentation, the questionnaire for this study is based on the World Health Organization's definition of Health (WHO, 2001) and the definition of an old-age friendly city (of Health and Welfare, 2012a, b), characteristics of health cities (Ashton, 1992) and indicators and definitions of health communities (Hancock and Minkler, 1997) and the first draft of a questionnaire on pre-test research designed after several expert opinions, after pre-test, and then according to the range of the study to modify the preparation of questionnaires, and finally according to the results of the pre-test conducted internal consistent confidence analysis, It is revised into an official questionnaire. This study is mainly to explore the cognition and needs of the elderly people in Taiwan for the construction of a healthy community. This study is thus for the elderly people currently living in the targeted city. The total number of matrices is approximately 35,000 people. We used a seven-point Likert scale in our questionnaire for an anonymous survey to measure the subjects' attitudes under investigation. Questionnaire administrations are conducted in person and sampled in a random sampling design. The number of questionnaires issued is 538, sample ratio is

approximately 1.5%. We conducted descriptive statistics regarding demographics, such as gender, age, education level, then the ANOVA and regression analysis were also conducted to analyze the relationship among all the variables.

## RESULTS

For the Internal Consistency, it indicated the Coefficient of Cronbach's Alpha as following for the cognition and needs.

### Personal background data analysis

Total distribution of this study is 538 questionnaires. Elimination of invalid and wrong questionnaires, the total response of valid questionnaires is 500, the effective response rate is 92.9%. Personal background information in descriptive statistics including seven items such as gender, age, education level, work status, marital status, residency status and health status were analyzed. It is known that in Table 1 the majority of the subjects in this study were women, about 60% (63%), mostly married, about 70% (69.2%), but there are also many widows (22.6%).

### Analysis of the cognition in the importance of elderly people for building a healthy community

It is also indicated that in Table 2, the statistical analysis of the elderly people thinks most important to construct the "health care service" in the cognitive level of constructing the various dimensions and variables of a healthy community. Secondly, "living environment", "economic aspects" and "multiple resources" is relatively unimportant. The top 10 of the major variables in each configuration are "Community residents can support each other" (4.73), "Adequate and sophisticated medical services" (4.68), "The community provides patrol services to ensure personal safety" (4.63), "Adequate preventive

**Table 2.** Basic data analysis for backgrounds of respondents (N = 500).

Backgrounds	Groups	Numbers	Percent (%)	Ranking
Gender	Male	185	37	2
	Female	315	63	1
Age	65-69 y/o	288	57.6	1
	70-75 y/o	123	24.6	2
	76-80 y/o	40	8	3
	81-85 y/o	22	4.4	5
	>86 y/o	27	5.4	4
Education	literacy	40	8	5
	Elementary	103	20.6	3
	Junior High	76	15.2	4
	Senior High	130	26	1
	College	124	24.8	2
	Graduate	27	5.4	6
Working	Current	36	7.2	3
	Retired	401	80.2	1
	Other	63	12.6	2
Marital	Unmarried	25	4.6	3
	Married	346	69.2	1
	divorced	18	3.6	4
	Widowed	113	22.6	2
Residency	Alone	68	13.6	4
	With couple	195	39	1
	With children	103	20.6	3
	With families	116	23.2	2
Health	Better	58	11.6	3
	Good	262	52.4	1
	Not bad	159	31.8	2
	Not well	21	4.2	4

health services" (4.61), "Community sanitation clean" (4.59), adequate lighting in the community environment (4.59), multiple health promotion activities (4.56), Plot road leveling (4.56), have enough exercise space (4.56), "can convey health care information to the elderly" (4.55). The last three ones are "able to support the elderly entrepreneurship" (3.46), providing re-employment opportunities for older people (3.67), and "seniors get paid for work" (3.69), all three belong to the "economic aspects" of the construction surface.

The cognitive average scores for elderly people on the importance of constructing the eight major dimensions for a healthy community were shown in Table 4. As shown in the order of health care services (4.59), living environment (4.54), community support and high participation (4.38), life function (4.34), meeting

requirements (4.24), culture, and characteristics (4.23), multivariate resources (4.19), and economics (3.79).

#### **Analysis of the overall level of the needs of elderly people to construct a healthy community**

It is the statistical analysis of the elderly people's need, "health care services", as the most needed to construct the various dimensions and variables of the healthy community based on Table 3. The second is "living environment", the "Economic aspects" and "multiple resources" of the construction dimensions are relatively unnecessary. The top 10 of the requirements topics in each configuration are "community sanitation clean" (4.57), "adequate lighting in the community environment"

**Table 3.** The cognitive analysis for the dimension and variables in importance of elderly people for constructing a healthy community (N=500).

No.	Dimensions	Variables	Average	SD	Ranking	T-test
1	Living Environment	Community sanitation clean	4.59	0.55	5	0.000
3	Living Environment	Adequate lighting in the community environment	4.59	0.52	5	0.016
7	Living Environment	The community provides patrol services to ensure personal safety	4.63	0.57	3	0.022
12	Community Support	Community residents can support each other	4.73	0.67	1	0.003
15	Community Support	Community activities are financially affordable for the elderly	4.24	0.84	-4	
16	Community Support	Be able to participate in Community decisions on the issues of the elderly	4.15	0.83	-5	
27	Economic Aspect	To provide a re-employment opportunity for the elderly	3.67	1.01	-2	0.021
28	Economic Aspect	Can support the old people to start a business	3.46	1.04	-1	0.004
29	Economic Aspect	Elderly people get paid for work	3.69	1.08	-3	0.000
35	Health Care Services	Adequate and comprehensive medical services	4.68	0.53	2	0.000
36	Health Care Services	Adequate preventive health care services	4.61	0.58	4	0.002

**Table 4.** An analysis in the needs aspects of the elders for the health community.

No.	Dimensions	Variables	Average	SD	Ranking	t-test
1	Living Environment	Community Sanitation Clean	4.57	0.62	1	0.015
2	Living Environment	District Road Formation	4.49	0.64	4	
3	Living Environment	Adequate lighting in the Community environment	4.56	0.64	2	0.004
7	Living Environment	The community provides patrol services to ensure personal safety	4.49	0.69	4	
27	Economic Aspect	To provide a re-employment opportunity for the elderly	3.45	1.05	-2	0.000
28	Economic Aspect	Can support the old people to start a business	3.31	1.02	-1	0.000
29	Economic Aspect	Elderly people get paid for work	3.57	1.10	-3	0.000
35	Health Care Services	Adequate and comprehensive medical services	4.55	0.58	3	0.000
36	Health Care Services	Adequate preventive health care services	4.49	0.67	4	0.005

(4.56), "Adequate and perfect medical service" (4.55), "Community Road Leveling" (4.49), "community provides patrol services to ensure personal safety" (4.49), adequate preventive health services (4.49), "can convey health care information to the elderly" (4.46), multiple health promotion activities (4.44), have enough exercise space (4.43), "helping the disadvantaged" (4.39). The last three ones are "able to support the elderly entrepreneurship" (3.31), providing re-employment opportunities for older people (3.45), and "seniors get paid for work" (3.57), all three belong to the "economic aspects" of the construction.

#### **Analysis of the differences between the cognition and needs of elderly people in different backgrounds**

##### **Gender**

In the case of a gender-dependent variable, the older person takes a separate sample for the construction of the cognitive importance of the building of a healthy

community. For t-test analysis results showed that in support of the elderly to start a business ( $p < 0.001$ ), multicultural facilities ( $p < 0.001$ ), all kinds of lifelong learning courses ( $p < 0.001$ ), elder-friendly restaurant ( $p < 0.01$ ), community sanitation clean ( $p < 0.05$ ), cultural activities with community characteristics ( $p < 0.05$ ), and so on, a total of six topics have statistical differences.

##### **Age**

Taking the age level as the independent term, the elderly people are dependent on the variables of the cognitive importance of constructing a healthy community, and then the univariate analysis is carried out by a single factor. (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Results indicated that ample toilet and rest seats in public spaces (Living Environment 5), plenty of exercise space (Life Function 2), community activities are financially affordable for the elderly (Community Support 4), A stage with an elderly person's expertise (Satisfy Needs 3),

requiring multiple resource support (Multiple Resources 4), able to support the elderly entrepreneurship (Economic Aspects 3), multicultural facilities (Cultural Characteristics 1) and clear communication of health-care information to the elderly (Health Care 3) has statistically significant significance, the F verification,  $p < 0.05$ ). Among them is the community support and the variable of multiple resources, age is more significant.

### **Education**

With the education level as the variable, the cognitive importance of elderly people for the construction of healthy community in the various dimensions and variables are based on variables, a single factor variable analysis (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Results showed that there are ample toilets and rest seats in public spaces (Living Environment 5), friendly high-squatter restaurant (Life Function 3), community activities are financially affordable for the elderly (Community Support 4), A stage with an elderly person's expertise (Satisfy Needs 3), requiring multiple resource support (Multiple Resources 4), able to support the elderly entrepreneurship (Economic Aspects 3), Cultural activities with Community characteristics (Cultural Characteristics 3) and have sufficient and perfect medical services (Health Care 1 is statistically significant, with the F verification,  $p < 0.05$ ). The higher the education level, the more significant the impact.

### **Working condition**

Taking work as a variable, the cognitive importance of elderly people to construct a healthy community in the various dimensions and variables are based on variables, a single factor variable analysis (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Analysis results indicated that the community has sufficient lighting ( Living Environment 3), convenient transportation (Life Function 1), community activities are financially affordable for the elderly (Community Support 4), a stage with senior people's expertise (Satisfy Needs 3), human resources to build on the ground (Multiple Resources 2), can support the elderly people to start a business (Economic Aspects 3), respect for individual religious beliefs (Cultural Characteristics 5) and can convey health care information to the elderly (Health care 3) is statistically significant, F Verification,  $p < 0.05$ ). The more the retirees are, the more significant are the retired people.

### **Marital status**

With marriage as the variable, the cognitive importance of elderly people for the construction of health community in

the various dimensions and variables are based on variables, a single factor variable analysis (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Analysis Results indicated that community road leveling (Living Environment 2), shopping environment for elderly people's needs (Life Function 4), community activity is affordable for seniors ( Community Support 4), the elderly have the opportunity to contribute to the service (Satisfy Needs 5), human resources to be established on the ground (Multiple Resources 2), helping the elderly to get re-employment ( Economic Aspect 2), can preserve historical monuments (Cultural Characteristics 4) and multiple health promotion activities (Health Care 5) and so statistically significant, F Verification,  $p < 0.05$ ). The elderly people who were unmarried or divorced were more aware of the cultural and medical facets.

### **Living status**

With the living condition as the variable, the cognitive importance of elderly people for the construction of health community in the various dimensions and variables are based on variables, a single factor variable analysis (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Analysis results indicated that community security space (Living Environment 4), elderly-friendly restaurant (Life Function 3), community activity is affordable for seniors (Community Support 4), a stage with the most senior person's expertise (Satisfy Needs 3), organized in a mutual aid group (Multiple Resources 3), providing re-employment opportunities for the elderly ( Economic Aspect 2), respect for individual religious beliefs ( Cultural Characteristics 5) and can clearly communicate health care information to the elderly ( Health Care 3) and so statistically significant, F Verification,  $p < 0.05$ ). The elderly people who live with their spouses have a slightly more cognitive understanding of the living environment, community support and multiple resources.

### **Health**

With the health status as the variable, the cognitive importance of elderly people for the construction of health community in the various dimensions and variables are based on variables, a single factor variable analysis (One way ANOVA), if significant differences are achieved, then multiple comparisons are performed afterwards. Analysis results showed that community with adequate lighting (Living Environment 3), elderly-friendly restaurant (Life Function 3), enough activity for seniors to participate (Community Support 2), older people have the opportunity to contribute to the service (Satisfy Needs 5), requires support for multiple resources (Multiple Resources 4) providing re-employment opportunities for older people (Economic Aspects 2), multicultural facilities (Cultural Characteristics 1) and multiple health promotion activities

**Table 5.** Correlation analysis between different backgrounds and needs aspects for elders.

	Gender	Age	Education	Work	Marital	Residence	Healthy
Environment 2		-0.141**	0.150**		-0.136**		
Environment 4				-0.132**	-0.103*		-0.115*
Environment 5	0.117**	-0.113*	0.114*		-0.151**		
Environment 6				-0.089*			
Function 2						0.088*	
Function 3			0.156**				
Support 1		-0.109*	0.124**		-0.113*		
Support 2		-0.092*	0.146**				
Support 3	0.099*		0.096*		-0.130**		
Support 4	0.105*		0.097*		-0.125**		
Support 5			0.200**		-0.091*		
Satisfaction1		-0.096*	0.160**				
Satisfaction2	0.185**		0.128**	-0.089*		-0.093*	-0.131**
Satisfaction3			0.208**	-0.109*			-0.120**
Satisfaction4						0.094*	
Satisfaction5			0.119**				
Resources1		-0.093*					
Resources 2	0.093*	-0.137*		-0.108*			-0.096*
Resources 3		-0.112*	0.187**				
Resources 4	0.089*	-0.144*	0.108*				
Economy1	-0.095*			0.154**		0.198**	0.171*
Economy2				-0.126**			
Economy3	0.117*	-0.129**	0.088*	-0.127**			
Economy4	0.090*	-0.107*		-0.125**			
Culture 1	0.184**	-0.127**	0.156**				-0.145**
Culture 2	0.109*		0.123**				
Culture 3	0.110*		0.154**				-0.091**
Culture 4			0.142**				-0.090*
Culture 5			0.112*		-0.122**	0.125**	
Health 1			0.236**				
Health 2		-0.106*	0.183**		-0.111*		
Health 3			0.132**				
Health4	0.124**	-0.101*	0.138**				
Health 5			0.128**				

\*p < 0.05; \*\*p < 0.01, \*\*\*p < 0.001

(Health Care 5) and so statistically significant, F Verification,  $p < 0.05$ ). It is statistically significant that the health condition is very good and the cognition of the elderly is remarkable. (Table 5 to 8)

### Open questions

According to the opening questions, the two aspects of "life function and health care" are still the concerns of the elderly people for the cognitive importance and the needs or demands for constructing a healthy community. The results are similar to those presented in the questions of quantitative studies. However, more worthy of our attention is the recognition and need for "lifelong learning" in the "Satisfy

Needs" structure, which includes the provision of more senior technical and recreational training courses for the elderly people, as well as the organization of community sports activities and workshops. This result shows that in addition to the variable of "health", lifelong learning is an important part of the cognitive importance and needs or demands of the healthy community. In other words, the investment of "adult learning and Continuing education" is also one of the key factors in building a healthy community (Yates, 2007). (Table 9)

### DISCUSSION AND CONCLUSION

The elderly people have the "health care service" as the



**Table 6.** Correlation analysis between different backgrounds and cognition for elders.

	Gender	Age	Education	Work	Marital	Residence	Healthy
Environment 1		0.110*	0.186**	0.099*		-0.104*	-0.135**
Environment 2			0.225**	0.167*		-0.109*	
Environment 3		-0.107*	0.230**	0.096*			-0.116**
Environment 4				0.141**		-0.093*	-0.160**
Environment 5		-0.141**	0.234**	0.099*	-0.099*		-0.121**
Environment 6			0.177**				-0.093**
Environment 7			0.119**			-0.119**	-0.190**
Function 1			0.143**				
Function 3			0.281**			-0.088**	
Support 2		-0.181**	0.210**				-0.129**
Support 3			0.132**		-0.126**		
Support 4		-0.174**	0.241**	-0.106*			-0.095**
Support 5			0.216**				
Satisfaction 2	0.180**		0.159**				-0.150**
Satisfaction 3		-0.113*	0.232**	-0.138**		-0.119**	-0.207**
Satisfaction 4			0.138**				
Satisfaction 5			0.190**	-0.137**		-0.105*	-0.164**
Resources 1			0.176**			-0.099*	
Resources 2			0.195**				-0.144**
Resources 3			0.204**			-0.109*	-0.108**
Resources 4			-0.102*	0.260**			-0.165**
Economy 1			-0.093*	0.188**			
Economy 2			-0.167**	0.137**		-0.151**	0.093*
Economy 3	0.157**	-0.146**	0.098*				
Economy 4	0.142**	-0.102*					
Culture 1	0.199**	-0.153**	0.200**				
Culture 2	0.109*		0.180**				-0.120**
Culture 3	0.103*		0.195**		0.091*	-0.146**	
Culture 4			0.093*				
Culture 5			0.164**				
Health 1			0.256**				
Health 2		-0.101*	0.198**				
Health 3		-0.150**	0.168**				
Health 4			0.093*			-0.124**	
Health 5			0.101*	0.110*		-0.130**	

\*p &lt; 0.05, \*\*p &lt; 0.01, \*\*\*p &lt; 0.001.

most important factor to construct the various dimensions and variables of the health community, followed by the "Living Environment", and the "Economic Aspects" and "Multiple Resources" are relatively unimportant. The top 10 of the requirements topics in each configuration are "community sanitation clean"(4.57), "adequate lighting in the community environment"(4.56), "Adequate and perfect medical service" (4.55), "Adequate preventive health care"(4.49), "community provides patrol services to ensure personal security" (4.49), "can clearly convey health care information to the elderly" (4.46), multiple health promotion activities (4.44), have enough exercise space (4.43), "Helping the disadvantaged" (4.39), "Community safe and accessible public space" (4.36) and

good maintenance and management of public facilities (4.36) The last three ones are "able to support the elderly entrepreneurship" (3.31), providing re-employment opportunities for older people (3.45), and "seniors get paid for work" (3.57), all three belong to the "economic aspects" of the construction surface.

In the analysis of cognitive level, it was found that there were gender statistical differences in a total of seven topics, such as supporting elderly people's entrepreneurship, having diverse cultural facilities, having various lifelong learning courses, having friendly seniors' restaurants, community sanitation and clean sanitation, and activity messages that could be fully communicated to the elderly and the type of resources that would affect

**Table 7.** ANOVA for the needs aspects of health community based on different health status.

Health status	No	Ave	SD	ANOVA			F	Post Comp	
				Variation	SS	DF			MS
Environment 5 (Space and chair)									
(1)excellent	58	4.53	0.681	inter	5.209	3	1.736	2.856**	
(2)good	262	4.33	0.787	inner	301.591	496	0.608		
(3)fair	159	4.21	0.812	sum	306.800	499			
(4)bad	21	4.48	0.68						
Function 2 (Exercise)									
(1)excellent	58	4.74	0.548	inter	11.097	3	3.699	7.783***	(1)>(2)
(2)good	262	4.34	0.74	inner	235.725	496	0.475		(1)>(4)
(3)fair	159	4.52	0.645	sum	246.822	499			
(4)bad	21	4.1	0.7						
Support 4 (Affordable)									
(1)excellent	58	4.28	0.696	inter	4.266	3	1.422	1.896	
(2)good	262	4.18	0.862	inner	372.076	496	0.75		
(3)fair	159	4.03	0.934	sum	376.342	499			
(4)bad	21	4.33	0.796						
Satisfaction 2 (Learning)									
(1)excellent	58	4.4	0.591	inter	10.268	3	3.423	5.579***	(1)>(2)
(2)good	262	4.06	0.711	inner	304.314	496	0.614		(1)>(4)
(3)fair	159	4.09	0.919	sum	314.582	499			
(4)bad	21	3.62	0.973						
Resources 2 (Local HR)									
(1)excellent	58	4.17	0.625	inter	7.645	3	2.548	3.384**	(1)>(4)
(2)good	262	3.94	0.812	inner	373.555	496	0.753		
(3)fair	159	3.97	1	sum	381.200	499			
(4)bad	21	3.48	1.03						
Economy 2 (Elder re-working)									
(1)excellent	58	3.59	0.937	inter	4.160	3	1.387	1.246	
(2)good	262	3.37	1.008	inner	551.782	496	1.112		
(3)fair	159	3.52	1.157	sum	555.942	499			
(4)bad	21	3.62	1.117						
Culture1 (Multiple)									
(1)excellent	58	4.38	0.616	inter	11.838	3	3.946	6.064***	(1)>(4)
(2)good	262	4.23	0.729	inner	322.760	496	0.651		(2)>(4)
(3)fair	159	4.18	0.938	sum	334.598	499			
(4)bad	21	3.52	1.078						
Health 5 (Health promotion)									
(1)excellent	58	4.59	0.593	inter	3.094	3	1.031	2.131*	
(2)good	262	4.43	0.638	inner	240.106	496	0.484		
(3)fair	159	4.37	0.792	sum	243.200	499			
(4)bad	21	4.67	0.856						

\*p &lt; 0.05, \*\*p &lt; 0.01, \*\*\*p &lt; 0.001

**Table 8.** ANOVA for the cognition of health community based on different health status.

Health status	No	Ave	SD	ANOVA			F	Post Comp	
				Variation	SS	DF			MS
Environment3 (enough light)									
(1)excellent	58	4.79	0.409	inter	4.618	3	1.539	5.867**	(1)>(2)
(2)good	262	4.56	0.497	inner	130.10	496	0.262		(1)>(4)
(3)fair	159	4.61	0.527	sum	134.78	499			
(4)bad	21	4.29	0.784						
Function3 (friendly restaurant)									
(1)excellent	58	4.48	0.504	inter	11.278	3	3.759	6.668***	(1)>(2)
(2)good	262	4.17	0.696	inner	279.60	496	0.564		(1)>(3)
(3)fair	159	4.01	0.9	sum	290.98	499			(1)>(4)
(4)bad	21	4.14	0.727						
Support2 (space)									
(1)excellent	58	4.74	0.548	inter	6.129	3	2.043	4.108**	(1)>(4)
(2)good	262	4.34	0.74	inner	246.69	496	0.497		
(3)fair	159	4.52	0.645	sum	252.88	499			
(4)bad	21	4.1	0.7						
Satisfaction5 (elder contribution)									
(1)excellent	58	4.53	0.503	inter	12.627	3	4.209	7.316***	(1)>(2)
(2)good	262	4.18	0.714	inner	285.33	496	0.575		(2)>(4)
(3)fair	159	4.18	0.875	sum	298.00	499			(3)>(4)
(4)bad	21	3.67	0.913						
Resources4 (multiple support)									
(1)excellent	58	4.6	0.493	inter	9.414	3	3.138	5.330**	(1)>(2)
(2)good	262	4.28	0.73	inner	292.08	496	0.589		(1)>(4)
(3)fair	159	4.18	0.883	sum	301.42	499			
(4)bad	21	4	0.894						
Economy2(elder re-working)									
(1)excellent	58	3.64	0.931	inter	11.145	3	3.715	3.692**	(3)>(2)
(2)good	262	3.55	0.996	inner	499.03	496	1.006		
(3)fair	159	3.89	1.037	sum	510.28	499			
(4)bad	21	3.62	1.024						
Culture1 (multiple)									
(1)excellent	58	4.28	0.874	inter	5.632	3	1.877	3.467**	(2)>(4)
(2)good	262	4.34	0.646	inner	268.0	496	0.541		(3)>(4)
(3)fair	159	4.32	0.749	sum	274.2	499			
(4)bad	21	3.81	1.167						
Health5 (health promotion)									
(1)excellent	58	4.74	0.442	inter	3.256	3	1.085	2.892**	
(2)good	262	4.49	0.545	inner	186.6	496	0.375		
(3)fair	159	4.59	0.731	sum	189.2	499			
(4)bad	21	4.57	0.811						

\*p &lt; 0.05, \*\*p &lt; 0.01, \*\*\*p &lt; 0.001

**Table 9.** Open questions.

No.	Open Item Issues (comments and recommendations)	Surface description
1	Accommodation for elderly singletons	Living Environment
2	An environment with good air	Living Environment
3	A community setting for older people's sports equipment	Life function
4	Dining with the elderly at the care point	Life function
5	In line with school and community activities	Community support
6	Provide more skills and leisure training courses for elderly people	Satisfy Needs
7	Organizing more community sports and learning courses	Satisfy Needs
8	The importance of lifelong learning	Satisfy Needs
9	Activities to prevent loss of intellectual health should be strengthened	Health Care
10	Teach the concept of correct life and death and how to deal with it	Health Care

community development.

In the analysis of the importance of needs, it was found that there were gender statistical differences in a total of eight topics, including support for older people's entrepreneurship, diverse cultural facilities, various lifelong learning courses, health talks in line with the elderly, adequate toilets and seating in public the elderly, and the establishment of local human resources.

In terms of cognitive structure, the correlation with the educational level and health status of the elderly is of statistical significance, especially in that the educational level covers almost most of the composition and subject matter. Among them, community sanitation is clean, in addition to gender and marriage, are related to the background of the elderly, can be seen its importance. The same is true for public spaces with plenty of toilets and seating.

In terms of the structure and subject matter of needs level, the correlation of educational level is also the most significant, which is almost statistically significant. Among them, various lifelong learning is the subjects of the highest needs for the elderly, and public spaces with adequate toilets and seating are highly relevant and statistically significant.

The answers to the open questions show that the two aspects of "life function and health care" are still the concerns of the elderly in terms of the cognitive importance and needs of constructing healthy communities. The results are similar to those presented in the case of volume studies. However, it is even more worthy of our attention to show the awareness and needs of "lifelong learning" in the "meet the needs" framework, including providing more skills and leisure training courses for the elderly and organizing more community group health activities and study courses.

This result shows that lifelong learning is also an important part of the cognitive importance and demand of healthy community construction, in addition to the indispensable part of the theme of "health". In other words, the investment in "adult learning and continuing education" is also one of the key factors in building healthy communities.

## Research limitations

### *Limitation of sampling of subjects*

This study is to facilitate sampling, at different times in different communities or strongholds to extract a certain amount of elderly people to be interviewed, and then statistical analysis to infer the behavior patterns of the population, sampling design and results will inevitably have errors.

### *Limitation of research methods*

This study uses quantitative questionnaires, which belong to the score scale, and expects respondents to answer objectively as the basis for data analysis. However, the questionnaire information obtained may vary according to individual factors of the respondents, such as education level, beliefs and experience, and may result in some measurement error.

### *Limitation of inference*

This study is unable to do a comprehensive and long-term investigation due to the limitations and considerations of human, material and time, so the research results are difficult to infer.

## Declaration of interests

We declare no competing interests.

## ACKNOWLEDGEMENTS

This work was funded by the Health Law Research Center of Taiwan Law Foundation and directed by the Health Promotion Section in the Bureau of Public Health, Chia-Yi City Government, Taiwan as well as the

Graduate Institute of Continue Education, College of Education, National Chung Cheng University, Taiwan.

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