

Characteristics Healthy Ageing among the Elderly in Southern Thailand

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ABSTRACT

A descriptive research was used to study the characteristics of healthy ageing which was created based on Rowe and Khan's Model which included; avoiding disease and disability, maintaining high cognitive and physical function, and active engagement with life. The subjects consisted of 370 elderly people who resided in Thasala sub-district, Thasala district, Nakhon Si Thammarat province who were recruited by the probability proportion to the size and simple random sampling. Data were collected by using the Elderly Health Questionnaire which was developed by the researcher. Data were collected over the period January to May 2006 and analyzed by using frequencies and mean score. The reliability coefficient of this questionnaire was 0.87 and the value of CVI was 0.91.

The findings revealed that the mean scores of the overall healthy ageing and maintaining high cognitive and physical function were at a high level. Although the mean scores of avoiding disease and disability was at a moderate level due to the subjects still had limited some daily living practices namely having stretching and aerobic exercise, avoiding fat diet and fried diet, drinking milk or soy milk, avoiding taking alcohol, consulting health personnel, and having regular physical check-up. Active engagement with life was also at a moderate level due to the subjects still had limited manifested participating in elderly club and community activities. Thus, to enhance the healthy ageing, health care providers should design program interventions by motivating and promoting these daily living practices.

Key words: Healthy ageing, Avoiding disease and disability, Maintaining high cognitive and physical function, Active engagement with life, Elderly

INTRODUCTION

It is well recognized that population ageing is a global phenomenon (Bowling, 2007). Thailand is one of the nations which has a great economic development and its population structure has been unprecedented as a consequence of both sharp declines in fertility and progress in reducing mortality (United Nation, 2007). The proportion of Thai elderly aged 60 and over is expected to increase from 10.5 percent in the year 2005 to 30 percent by 2050 (National Statistical Office, 2005). Overall, the impact of population ageing is bringing with it concerns relating to disease burden and disability (Zimmer and Martin, 2007) This experience has a significance effect on quality of life, not only on the elderly people, but also on their families, society and government as a whole (Lee, 2005). In reality, despite some elderly people having chronic illnesses or disabilities, it does not necessarily mean that all elderly people are unhealthy. There is widespread evidence that the majority of elderly people lead a healthy life, are independent and able to age healthily (Rowe and Khan, 1997; Sinsirimana, 2003; Rattakorn, 2007). This phenomenon has led to researches and clinicians increased interest in how to age healthily, thereby increasing the number of additional healthy years the elderly can live (Bowling, 2007).

Healthy ageing is an emerging concept in many societies that consider various dimensions to maintain healthy lives of elderly people (Sriruecha, 2002; Yatniyom, 2004). This concept has since also been referred to as successful ageing (Rowe and Khan, 1997). The term ‘successful ageing’ may not be considered appropriate to demonstrate positive health outcomes in old age due to the fact that world ‘success’ is usually associated with economic achievement or employment status, thus, the term ‘healthy ageing’ is preferred. Numerous definitions of healthy ageing have been described in the literature but the definition is still open to debate with perception differing from person to person (Hansen-Kyle, 2005). It ranges from the biomedical which views healthy ageing as the lack of illness with physical fitness (Laverack, 2004) to a comprehensive model which views healthy ageing as a lifelong-process including the prompt of health, independence and continued participation in roles and activities (Peel et al., 2004). In its current, most well-known incarnation, Rowe and Kahn define healthy ageing as the avoidance of disease and disability, the maintenance of high physical and cognitive function, and active engagement in social and productive activities (Rowe and Khan, 1997). Thus, healthy ageing is not only as the absence of physical disease and the presence of longevity, but it also focuses on the ability to continue to function physically, mentally, socially, spiritually and economically with relevance to community and cultural context (Sriruecha, 2002; Chamnankong, 2005). The dimension components of healthy ageing include physiological, psychosocial, cultural, and spiritual, as all human beings are holistic (Naka, 1999; Laverack, 2004; Chamnankong, 2005; Kahng, 2008).

The evidence shows that a change in the different aspects of healthy ageing may be reflected in an alteration of behavior or daily living practices (Montross et al., 2006). In addition, there is a different conception of healthy ageing between health scholars and the elderly which leads each group towards a

different characterization and manifestation of healthy ageing practice (McMullen, 2003). Therefore, knowledge about healthy ageing is still gaps, neither evaluates characterization of healthy ageing nor covers all dimensions of healthy ageing that drive good health in later life (McMullen, 2003). There is a need to clarify characteristics and how the elderly have manifested healthy ageing practices within their cultural context. It is essential for the elderly and health care providers to evaluate manifested healthy ageing practices for planning specific interventions to a certain dimension of healthy ageing among the Southern Thai elderly.

OBJECTIVES

The objective is to study the characteristics of healthy ageing among the elderly in Thasala sub-district, Thasala district, Nakhon Si Thammarat province.

FRAMEWORK OF THE STUDY

Rowe and Khan's model of successful ageing was applied as a framework in this study. The foundation of this model utilized information from the Mac Arthur's interdisciplinary study in which sixteen scientists from various disciplines such as biology, neuroscience, epidemiology, sociology, psychology and geriatrics took part (Rowe and Khan, 1997). Although, the term 'successful ageing' is criticized due to the word 'success,' several cultures including Thai culture is usually associated with economic achievement, employment status, income, and asset (Peel et al., 2004). Due to the elderly or people emphasize on psychosocial outcomes only, 'successful ageing' is not considered appropriate to explain positive health outcomes in old age. Instead 'healthy ageing' is preferred. Thus, the term healthy ageing is used to encapsulate successful ageing in Australian, European and Thai literatures (Thiamwong et al., 2008) and it appears to underlie health policy development in USA and Canada (Kendig, 2004).

This conceptual model has three components including avoiding disease and disability, high cognitive and physical function and active engagement with life (Rowe and Khan, 1997). From this model, participation in life can affect the avoidance of disease and disability in many ways such as regular exercise, weight management, proper nutrition, not smoking, adequate rest/sleep, stress management and preventive health screenings. Prevention of functional loss by using healthy lifestyles is the preferred method of high cognitive and physical function. Active engagement in life emphasizes interpersonal relationships and productive activities. Interpersonal relations are seen as involving contacts and transactions with others, exchanging of information, emotional support and direct assistance. Productive activities refer to the capacity of an individual to serve in the paid workforce and in volunteer activities (Rowe and Khan, 1997).

MATERIALS AND METHODS

Design and Sample

A descriptive study design was used to describe characteristics of healthy ageing among the elderly subjects in Thasala sub-district, Thasala district, Nakhon Si Thammarat province in Southern Thailand.

Calculating from the entire aging population of Thasala sub-district, the sample size was derived using a formula by Cochran (Kanjanawasi, 2002). In Thasala sub-district, there were 2,818 elderly people aged 60 years and older for calculate sample size (Thasala Hospital Statistical Department, 2005). Later, the probabilities proportionate to the size was used to obtain the subjects in 15 villages with three main age groups (60 -74, 75 - 84, and 85 and older). Lastly, three-hundred-and-seventy subjects were chosen by using probabilities proportion to the size and simple random sampling from a random-number table. The inclusion criteria were both sexes, 60 or more years of age, able to understand and speak Thai, no communication disorder and willing to participate in this study.

Instruments

The instrument used in this study was the Elderly Health Questionnaire. This instrument was developed by the researchers based on Rowe and Khans' model, comprising three parts. Firstly, socio-demographic data, comprised of gender, age, marital status, religion, living arrangement, education, occupation and income sources of the elderly. Secondly, health status, comprised of self-perceived health, Body Mass Index and history of chronic illness. Lastly, the characteristics of healthy ageing, comprised avoiding disease and disability, high cognitive function, high physical function and active engagement with life. The response regarding the scores of each dimension of healthy aging, avoiding disease and disability dimension consisted of 20 items and modified to be a 3-point Likert-type scale of 0 (never practise) to 2 (practise as recommended by the Bureau of Health Promotion). The high cognitive function dimension consisted of 5 items and modified to be a 3-point Likert-type scale of 0 (unable to perform) to 2 (very well). The high physical function dimension consisted of 14 items with modified 3-point Likert-type scale of 0 (cannot perform) to 2 (no difficulty). Lastly, the engagement with life dimension consisted of 8 items and modified to be a 3-point Likert-type scale of 0 (non-participate) to 2 (very often). Content validity of the questionnaire was examined by three experts, and the value of CVI was 0.91. This questionnaire was pre-tested for its reliability. Cronbach's Alpha Coefficient of this instrument was 0.87.

Protection of Human Subject

Prior to data collection, protection of human subjects was approved by Faculty of Nursing Ethics Committee, Chiang Mai University. The subjects who met the inclusion criteria were approached and explained the study purposes and method of the study. The subjects were assured that they had a right to withdraw from this study at any time. Their information as well as their identity would be kept confidential. After subjects agreed to participate, they filled out question-

naires. Some of the subjects could not complete the questionnaire by themselves because they could not read or write or were visually impaired. In these cases, the researcher used the face-to-face interview method to fill out their answers.

Data analysis

Descriptive statistics: frequency distributions, percentage, mean score and standard deviation were used to analyze socio-demographic characteristics, health status and characteristic of healthy ageing.

RESULTS

The following part provides a description of socio-demographic information obtained from 370 subjects: 162 male (43.8%) and 208 female (56.2%). Table 1 indicated that the age of the subjects was between 60 and 105 years with a mean of 70.8 years ($SD = 7.6$). The age of the subjects 85 years and over were 5.9%. More than half of them (58.4%) were married, and 54.6% were Muslim. Nearly three-quarters of them (71.4%) lived with family members and only 6.2% lived alone.

Table 1. Demographic characteristics of the subjects by gender (n = 370).

Characteristics	Male (162) number (%)	Female (208) number (%)	Total (370) number (%)
Age (years) (Range = 60-105, $\bar{X} = 70.8$, $SD = 7.7$)			
60-74	107 (66.0)	150 (72.1)	257 (69.5)
75-84	43 (26.5)	48 (23.1)	91 (24.6)
≥ 85	12 (7.5)	10 (4.8)	22 (5.9)
Marital status			
Single	2 (1.3)	7 (3.4)	9 (2.4)
Married	115 (71.0)	101 (48.5)	216 (58.4)
Divorced / Widowed	45 (27.7)	100 (48.1)	145 (39.2)
Religion			
Buddhist	73 (45.1)	95 (45.7)	168 (45.4)
Muslim	89 (54.9)	113 (54.3)	202 (54.6)
Living arrangement			
Living alone	10 (6.2)	13 (6.3)	23 (6.2)
Living with spouse only	16 (9.9)	20 (9.6)	36 (9.7)
Living with family members	125 (77.1)	139 (66.8)	264 (71.4)
Living with relative	11 (6.8)	36 (17.3)	47 (12.7)

Concerning socio-economic data, about 74 % completed primary school, 43.8 % were still working and 17.6% were farmers. Nearly half (49.5%) received money from their children and grandchildren. The details are given in Table 2.

Table 2. Socio-economic characteristics of the subjects by gender (n = 370).

Characteristics	Male (162) number (%)	Female(208) number (%)	Total (370) number (%)
Education			
Never go to school	26 (16.0)	64 (30.7)	90 (24.3)
Primary school	131 (80.9)	142 (68.3)	273 (73.8)
High school and higher	5 (3.1)	2 (1.0)	7 (1.9)
Occupation			
Non-working	78 (48.1)	130 (62.5)	208 (56.2)
Farmer	39 (24.1)	26 (12.5)	65 (17.6)
Merchant	11 (6.8)	26 (12.5)	37 (10.1)
Skilled laborer	32 (19.8)	24 (11.5)	56 (15.0)
Pensioner	2 (1.3)	2 (1.0)	4 (1.1)
Sources of income*			
Descendant	127 (47.0)	181 (51.4)	308 (49.5)
Self employed	82 (30.4)	65 (18.5)	158 (25.4)
Saving	36 (12.8)	74 (20.6)	99 (15.5)
Non contributor pension	23 (8.5)	30 (8.5)	53 (8.5)
Contributor pension	2 (1.3)	2 (1.0)	4 (1.1)

*More than one responses

With respect to general health status, about half (51.6%) of subjects considered their health as good. Approximately 24 percent of subjects were over-weight. Interestingly, half of them (50.3%) reported having at least one chronic illness, the most common chronic illnesses were hypertension (50.1%), diabetes (29.3%) and arthritis (9.1%). And it was found that one-fifth of the elderly (20%) had high current blood pressure. The details are given in Table 3.

Table 3. Health status of the subjects by gender (n=370).

Health Status	Male (162) number (%)	Female(208) number (%)	Total (370) number (%)
Perceived health			
Excellent	9 (5.6)	6 (2.9)	15 (4.1)
Good	86 (53.1)	105 (50.4)	191 (51.6)
Fair	58 (35.7)	80 (38.5)	138 (37.3)
Poor	9 (5.6)	17 (8.2)	26 (7.0)
Body Mass Index (kg/m ²) (Range = 12.4 - 41.1, X = 23.3, SD = 3.7)			
Under weight (<18.5)	25 (15.4)	18 (8.7)	48 (11.6)
Normal weight (18.5-24.9)	107 (66.1)	117 (56.3)	224 (60.5)
Over weight (25-29.9)	27 (16.7)	62 (27.7)	89 (24.1)
Obesity (≥ 30)	3 (1.8)	11 (5.3)	14 (3.8)
History of chronic illness			
No	93 (57.4)	91 (43.8)	184 (49.7)
Yes*	69 (42.6)	117 (56.2)	186 (50.3)
Hypertension	36 (48.0)	75 (51.4)	111 (50.1)
Diabetes	13 (17.3)	52 (35.6)	65 (29.3)
Arthritis	11 (14.8)	9 (6.2)	20 (9.1)
COPD	13 (17.3)	2 (1.4)	15 (7.1)
Stroke	1 (1.3)	5 (3.3)	6 (2.7)
Heart disease	1 (1.3)	3 (2.1)	4 (1.7)
Current blood pressure			
Normal (< 140 / 90 mmHg)	137 (84.6)	161 (79.3)	302 (81.6)
High ($\geq 140 / 90$ mmHg)	25 (15.4)	43 (20.7)	68 (18.4)

*Some persons had more than one chronic illness

Regarding characteristics of healthy ageing based on Rowe and Khan's model, it was found that the mean scores of overall healthy ageing, maintaining high cognitive function and maintaining high physical function showed evidence at a high level while both avoiding disease and disability and active engagement with life were at a moderate level. The details are presented in Table 4.

Table 4. Range, mean, standard deviation, and level of healthy ageing (n=370).

Healthy Ageing	Possible Score	Range	Mean ± SD	Level
Overall	0-94	17-93	71.39±11.38	High
Avoiding disease and disability	0-40	9-40	26.98±5.03	Moderate
Maintaining high cognitive function	0-10	2-10	8.36±1.70	High
Maintaining high physical function	0-28	0-28	25.56±4.52	High
Active engagement with life	0-16	0-16	10.47±3.43	Moderate

In regard to avoiding disease and disability domain, it was found that more than three-quarter of subjects could practise as recommended in several items such as non smoking, drinking clean water, eating protein from fish and low-fat meat, and eating vegetables and fruit. However, only one-third of subjects reported taking aerobic exercise, drinking milk or soy milk and avoiding taking alcohol as recommended. Interestingly, less than one-quarter reported having physical check-ups and consulting health personnel as recommended. The details are given in Table 5.

Table 5. Level of practice in avoiding disease and disability (n=370).

Level of practice and disability activities	As recommended*	Less than recommended	Never practise
	number (%)	number (%)	number (%)
Taking physical activity	271 (73.2)	72 (19.5)	27 (7.3)
Taking aerobic exercise	123 (33.2)	109 (29.5)	138 (37.3)
Taking stretching exercise	93 (25.1)	126 (34.1)	151 (40.8)
Eating vegetables and fruit	282 (76.3)	86 (23.2)	2 (0.5)
Eating liver, entrails and eggs	168 (45.5)	194 (52.3)	8 (2.2)
Eating protein from fish and low-fat meat	321 (86.8)	46 (12.4)	3 (0.8)
Eating fat diet and fried diet	6 (1.6)	287 (77.6)	77 (20.28)
Eating sweetened food	13 (3.5)	311 (84.1)	46 (12.4)
Drinking milk or soy milk	126 (34.1)	201 (54.3)	43 (11.6)
Drinking clean water	327 (88.3)	35 (9.5)	8 (2.2)
Taking a vitamin or hormone	39 (10.5)	161 (43.6)	170 (45.9)
Maintaining peace	246 (66.5)	108 (29.2)	16 (4.3)
Six hours of sleep a day	235 (63.5)	132 (35.7)	3 (0.8)
Good ventilating in bed room and home	226 (61.2)	134 (36.3)	10 (2.5)
Preventing accident	236 (63.8)	77 (20.8)	57 (15.4)
Non-smoking	334 (90.3)	32 (8.6)	4 (1.1)
Avoiding taking alcohol	119 (32.2)	177 (47.8)	74 (20.0)
Physical check-ups	85 (23.0)	205 (55.4)	80 (21.6)
Consulting health personnel	75 (20.3)	189 (51.2)	106 (28.6)
Seeking health information	142 (38.4)	212 (57.3)	16 (4.3)

* Refer to the Bureau of Health Promotion, MoPH (2003).

Concerning maintaining high cognitive function, it was found that the majority of the elderly (85.9%) could perform very well in remembering events that happened daily. Over 70 percent of subjects could make a conversation with others and remember dates and names of other people very well. Only half of them (50.2%) could plan for working very well. The details are given in Table 6.

Table 6. Number and Percentage of level of maintaining cognitive function (n=370).

Cognitive function	Level of performing		
	Very well number (%)	Fairly number (%)	Unable number (%)
Remembering events that happen within a day	318 (85.9)	50 (13.5)	2 (0.6)
Remembering events that happen more than one day	205 (55.4)	161 (43.5)	4 (1.1)
Remember date or name of other people	271 (73.2)	99 (26.8)	0 (0.0)
Conversation with others	285 (77.0)	82 (22.2)	3 (0.3)
Planning or thinking for working	186 (50.2)	173 (46.8)	11 (3.0)

Concerning level of maintaining physical function of subjects as shown in Table 7, with respect to Activity Daily Living index indicated that 94 to 97 percent of subjects had no difficulty in performing the basic activities of daily living. Likewise, 61 to 89 percent of the subjects could perform such activities in instrumental activity of daily living without any difficulty.

Table 7. Number and percentage of level of maintaining physical function (n=370).

Physical function	Level of performing		
	No difficulty number (%)	Difficulty number (%)	Cannot perform number (%)
ADL Index			
Feeding	349 (94.3)	17 (4.6)	4 (1.1)
Grooming	358 (96.7)	8 (2.2)	4 (1.1)
Transferring	357 (96.4)	8 (2.2)	5 (1.4)
Toileting	351 (94.9)	13 (3.5)	6 (1.6)
Indoor mobility	350 (94.5)	15 (4.1)	5 (1.4)
Dressing	359 (97.0)	5 (1.4)	6 (14.6)
Bathing	353 (95.4)	11 (3.0)	6 (1.6)
IADL Index			
Walking outdoor	228 (61.6)	110 (29.8)	32 (8.6)
Climbing stairs	308 (83.2)	47 (12.7)	15 (4.1)
Ability to stand up	328 (88.6)	36 (9.8)	6 (1.6)
Heavy housework	289 (78.1)	50 (13.5)	31 (8.4)
Leisure activities	289 (78.1)	50 (13.5)	31 (8.4)
Transportation	260 (70.3)	82 (22.1)	28 (7.6)
Managing money	267 (80.3)	56 (15.1)	17 (4.6)

Regarding active engagement with life, the majority of subjects (84.3%) communicated with neighbors and over half of them (52.4%) made decisions together with their family very often. Nearly half of subjects (49.7%) helped the family to clean house very often and 45.9 percent of them also participated in ceremony with neighbors very often. Although more than half of subjects (54.6%) did not participate in activities of an elderly club or other formal groups. The details are given in Table 8.

Table 8. Number and percentage of participation in active engagement with life (n=370).

Active engagement with life	Level of participation	Very often	Fairly often	Non
		number (%)	number (%)	number (%)
Caring children or grandchildren		116 (31.3)	203 (54.9)	51 (13.8)
Cleaning house		184 (49.7)	161 (43.5)	25 (6.8)
Making decision together in family		194 (52.4)	162 (43.8)	14 (3.8)
Communicating with neighbors		312 (84.3)	45 (12.2)	13 (3.5)
Participating in activities of an elderly club or other formal group		57 (15.4)	111 (30.0)	202 (54.6)
Participating in ceremony of neighbors		170 (45.9)	179 (48.8)	21 (5.7)
Participating in community activities		145 (39.1)	190 (51.4)	35 (9.5)
Volunteering to work for a charity		127 (34.2)	215 (58.1)	28 (7.6)

DISCUSSION

The overall socio-demographic characteristics of the elderly in Thasala sub-district were similar to the survey of the elder population in Thailand which found that most elderly were female, aged 60-74 years, married, living with their spouses, off spring or other members of the family, graduated from Prathom 4 (primary school level 4) and nearly half of them still worked (National Statistical Office, 2007). About half of their income was supported by their family. This finding differed from the survey of the elder population in Thailand which found that more than four-fifths of their income was supported by descendent (National Statistical Office, 2007).

Regarding chronic illnesses, it was found that half of subjects had at least one chronic disease. The top-three chronic illnesses were hypertension, diabetes and arthritis. It was agreed with the survey of the elder population in Thailand and several studies which found that half of subjects or over would suffer from at least one disease, namely, hypertension, diabetes, chronic obstructive pulmonary disease or osteoporosis (Buransan, 2003; Sinsirimana, 2003; National Statistical Office, 2007). Although more than half of subjects perceived that they had good health, it could be explained that the development of medicine and the encouragement from the public sector had been continually developed, so the recovery and prevention of illness and disability were efficient. This was congruent with the survey of the elder population in Thailand which pointed out that 43 percent

of the Thai elderly evaluated themselves as having good health (National Statistical Office, 2007). This finding was also agreed with several studies which found that half and over of the elderly perceived that their health was good (Deesaen, 2006)

With respect to characteristic of healthy ageing, results suggested that the overall score was at a high level. This study was similar to several studies (Malathum, 2001; Chareonkul and Boonthum, 2006) which found that the elderly had a high level of health status. This could be explained by the fact that most subjects were the young elderly who had a high level of physical and cognitive function, and more than half of them perceived their health as good. This finding follows the biological theory of ageing, the Wear and Tear theory which compared the human body to machine and that physical deterioration progresses with increasing age (Eliopoulos, 2001). The young elderly were in the period of early-weakening cells. Their body slowly changed. They were strong, and could do daily living practices; therefore, dependency of the elderly increased with increasing age (Rowe and Khan, 1997). It becomes family and social burden. Dependency also made the elderly feel that they were burden to the family and the society which may decrease their health. This finding was similar to several studies which found that the health of the elderly was significant positively correlated to age (Chareonkul and Boontuhm, 2006; Hornboonherm, 2007).

Concerning gender, more than half of these subjects were female. In general, females are more careful and aware of risk behaviors than males. The previous study found that female elderly practised positive health behaviors more than male elderly, particularly with regard to physical activity, smoking, drinking which are behaviors harmful to health (Kittipovanonth, 2002; Hornboonherm, 2007). In addition, the physical activity of female was unpaid work or domestic work which had no time limits and could be carried on through the day, whereas male did the paid work which had a specific time limit in a day. Besides, physical activity enhances physical movement and brain exercise as well as blood circulation, leading to good health. Therefore, female spent more hours on physical activity which had positive effect on health than male. Moreover, the changing biological function in female made them have suffering from chronic illness such as knee pain, backaches, so females are more likely to practise healthy daily living to prevent disability.

According to Thai society, the household members practising religious activities such as preparing and offering food to the monks was the role of females. Moreover, it is commonly found in Thai society that more female than male undertake religious activities such as making merit by practising offering food to a monk, going to temple on 8th and 15th lunar days and other religious holidays for listening to a sermon or a dharma. These practices of religion help to bring peace of mind which have resulted in happiness and healthy ageing (Naka, 1999; Rittitat, 2004; Rattakorn, 2007). This finding was similar to several studies which found that females were significant predictors to healthy ageing (Phungasem, 2001; Fone and Lundgren-Lindquist, 2003). However, this finding was not congruent with Rowe and Khan who explained that healthy agers tended

to be males more than females (Rowe and Khan,1997).

Education was an important factor to healthy ageing. Nearly three-fourth of subjects completed Prathom 4 (primary school level 4). Education contributed to developing knowledge, skill, problem solving, value systems and competence more to promote healthy lifestyle practices that are associated with healthy ageing. Furthermore, educated elderly have more accessibility to information about physical, psychosocial and spirit self health care. It may also be part of an individual's sense of feeling confident when facing new experience (Tate et al., 2003), so they had higher level of healthy ageing than less-educated ones. This finding was congruent with Rowe and Khan who explained that successful agers tended to be better-educated than low-educated (Rowe and Khan, 1997) and also congruent with several studies which found that highly educated elderly were more able to engage in healthy ageing than low educated elderly (Malathum, 2001; Wivatvanit, 2002; Buransan, 2003).

In regard to marital status, about half of subjects were married. It was one of the factors influencing longevity and the healthy ageing. It can be explained that the married elderly had spouses to consult with and to support each other. This is because married life provided companionship and someone who can give advice and care for each other, and to sooth loneliness. In contrast, widowed, divorced and separated subjects have no spouses to consult and support, some have to work and earn a living for the family with no rest time. Therefore, married elderly have more healthy ageing than the widow, divorced, separated and single elderly (Wivatvanit, 2002).

Likewise, nearly half of subjects lived with their spouse and descendent, so they participated in making vital decisions in their family and helped with housework. It can be explained that the elderly have more experiences and knowledge, so they advised their descendants, and they were respected for being good consultants who will be consulted about living from their descendants. They also helped take care of their grandchildren, housework, etc. (Buransan, 2003; Kingminghae, 2005; Rattakorn, 2007). With these activities, they made good relationships to each other, and did the activities together such as religious activities. These activities gave the elderly self-respect and the realization that they were useful in their family. Moreover, they had more opportunities to rest, and did not become too stressed or exhausted from earning a living, so they could afford a better healthy ageing, similar to the findings from studies by Kaewpan et al., (2007).

As previously mentioned, the subjects would be expected to avoid disease and disability at a high level, but this is not the case. The subjects were categorized at a moderate level of avoiding disease and disability. This finding was similar to several studies (Jongudomkarn et al., 2003; Kingminghae, 2005) which found that the elderly had mean scores of healthy activities at the moderate level. It could be explained that subjects must practise many activities in their daily living to avoid disease and disability such as exercise, nutrition, sleeping, stress management, and only one-third of them did aerobic exercise as recommended. The most common reason given for non-aerobic exercise is related to subjects' occupation,

their belief and history of chronic illness. The subjects believed that working was an exercise which had physical effects on strength and health (Sinsirimana, 2003; Ritthirat, 2004; Sophawannakul, 2004). Some subjects still worked physically in agricultural activities such as para-wood garden, fishing and daily employment. Some had physical activities by planting vegetables, doing their housework and others thought that their work made them spent a lot of energy already (Buransan, 2003; Sinsirimana, 2003; Palanitisena, 2006). They considered their work as physical activity and always felt tired and sleepy after work. They also felt that they did not need more exercise after work. It was also relevant to the studies of Naka (1999) and Rittirat (2004) which found that some elderly in the South explained that they exercised by doing housework, planting, excavating, etc.

Besides, subjects also felt that the Ministry of Public Health's exercise program including aerobic exercises such as aerobic dance and jogging, were activities for the youth, not the elderly. This type of exercise may cause an accident. Some felt aerobic dance was a women's type of exercise. Therefore, they did not like to practise aerobic exercises. Moreover, half of the subjects had chronic illnesses which were obstructive factors for their aerobic exercise. The result was also congruent with the survey of the National Statistical Office which pointed out that only 41.1 percent of the elderly took aerobic exercise (National Statistical Office, 2007).

In addition, their consumption behaviors which included sweet dishes and drinks such as tea with condensed milk. Some like fried dishes in tea shops such as fried chicken (Naka, 1999). Other groups eat full-cholesterol seafoods which are easily found in the area, for example, squid, shell, crab, including fast foods which were bought by their family. Consequently they were at risk to suffer any illness. Moreover, subjects still drank alcohol. It can be explained that although there were many anti-drinking campaigns launched by public and private sectors, social adjustment and principle of religion, the subject still drank alcohol due to the reason that some subjects still maintained social drinking behavior from time to time (Sophavannakul, 2004). Alcohol was one part of the meeting activities among friends of the same age. Similarly, in the parties, weddings or certain ceremonies, alcohol was still one of the beverage drink and some did it to reduce their anxiety (Sophavannakul, 2004). This result was congruent with the study of Jongudomkarn et al., (2003) who found that 30 percent of the elderly in North East Thailand still drank alcohol. It is not congruent to the survey of the National Statistical Office which found that only two percent of the elderly drink alcohol (National Statistical Office, 2007).

Similar to active engagement with life, the subjects were also categorized as being at a moderate level. It could be explained that subjects did not participate in some activities such as participating in the elderly club. Due to nearly half of them were still working, they did not have time for these activities. In addition, many activities in the elderly club were not interesting and could not meet the actual requirements of the elderly due to these activities were developed from only the elderly club committees without significant direct input from elderly people who were member of the elderly club such as aerobic dance in the

morning (Petdum, 2004). Therefore, many elderly clubs were closed or inactive (Siviroj, 2000). Meanwhile, the elderly usually had group activities with informal groups in their community such as religious activities in the local temple, groups in tea shop (Naka, 1999); therefore, they were not interested in elderly clubs. Some suffered from chronic illness such as arthritis, COPD, etc., thus, they could not participate in elderly club. This study was congruent with the survey of the National Statistical Office which was showed that 25.6 percent of the Thai elderly were members of elderly clubs and only 21.1 percent of them always participated in elderly club (National Statistical Office, 2007).

Concerning maintaining high physical function, the subjects were categorized as a high level. It can be explained that most of the subjects were the young elder, so they had physical fitness and perceived their health as good. In addition, they took care themselves to slow down cell damage by having vegetables and fruits, no fat foods, no drinking, retraining their mind and sleep deeply. This finding was congruent with the survey of the National Statistical Office which pointed that 95.7 to 97.6 percent of the elderly had no difficulty to activities daily living practice and 72.9 to 89.1 percent had no difficulty to instrumental activities daily living practice (National Statistical Office, 2007). The result was also similar to several studies which found that the young elderly had no difficulty to do both their daily basic activities and instrumental activities daily living practice (Chirathitkul, 2005; Punyaratabandhu et al., 2005; Charoenkul and Boontham, 2006).

Likewise maintaining high cognitive function, the subjects were categorized as a high level. It can be explained that the subjects were the young elderly with Prathom 4 certificate (primary school level 4), so their memory, consciousness were still good compared to the old old age (Panuthai et al., 2005). Because of brain weight loss when growing older, the elderly will be a loss of about 20 grams when they are 80 years old, therefore, memory capacity will decrease with age (Thanasiri, 2007). Additionally, it was found that physical capacities of the subjects were still effective and they often planned their working process themselves. In addition, some were interested in health information by reading books, magazines, newspaper, so dementia is slowed down (Rowe and Khan, 1997; Kahng, 2008). According to Intelligence theory, the memories of the old were still in good condition because they were interested in searching for more information (Rattakorn, 2007). The finding was congruent with the study by Punyaratabandhu et al., (2005) which found that young elderly had the normal memory more than the old elderly.

CONCLUSION AND RECOMMENDATION

Healthy ageing is a challenging phenomenon in Thai context. The results of this study expanded knowledge of healthy ageing based on Rowe and Khan's model that represents a breakthrough in the way gerontologists and others look at elderly. Scores indicated how the elderly have manifested daily living practices to healthy ageing. A higher score indicated a healthier elderly. The findings indicated that subjects were of high level of overall scores of healthy ageing and scores of

maintaining high cognitive and physical function although they had a moderate level scores of avoiding disease and disability and scores of active engagement with life. Health care providers can use scores on healthy ageing for planning interventions specific to a certain dimension of healthy ageing. Therefore, different approaches of healthy ageing can be utilized to promote individualized health.

This study had some limitations. The subjects used in this study were elderly people resided in one sub-district in Southern Thailand, so generalizability to other geographic regions is questionable. However, this study represents a necessary first step in understanding the feasibility and effectiveness of multi-faceted healthy ageing program for elderly people.

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