EFFECTS OF HEALTH AND SOCIAL SUPPORTS ON LIFE SATISFACTION AMONG THE THAI ELDERLY IN KANCHANABURI PROVINCE

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EFFECTS OF HEALTH AND SOCIAL SUPPORTS ON LIFE SATISFACTION AMONG THE THAI ELDERLY IN KANCHANABURI PROVINCE

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ABSTRACT

In Thailand, life satisfaction of the Thai elderly has become a more concern due to the greater vulnerability of this population to health problems and social limitations. The study aimed to investigate the effects of health and social support on life satisfaction among Thai elderly regarding three age groups (60-69, 70-79, and 80 and older) and between the male and female elderly in Kanchanaburi province. Multivariate analysis was used. The multicolinearity issue was tested among all variables and all variables were acceptable (FVI < 5).

The analysis found that older people with poor mental health reported lower life satisfaction. The elderly with poor perceived health had lower life satisfaction, especially among the elderly aged 70-79 years (Odds Ratio (OR) = 0.445, $p < 0.001$). Savings was found to have significant effects on life satisfaction of the elderly in particular to those aged 80 and older. The elderly with savings had higher life satisfaction (OR = 1.86; $p < 0.001$). Both the male and female elderly with poor perceived health or poor mental health had lower life satisfaction. The number of known and trusted people was found to have positive effects on life satisfaction of the elderly, especially the female elderly. The female elderly with a lower number of known and trusted people reported lower life satisfaction (OR = 0.613; $p < 0.001$).

The results of this study indicate that health is a major problem for the elderly in Thailand. Health services are very important to enhance the life satisfaction of the elderly in Thailand as well as income and savings. Job opportunities and ways to save should be promoted for the population at a younger age. Social networking should also be implemented, especially for the elderly woman.

KEY WORDS: LIFE SATISFACTION / HEALTH / SOCIAL SUPPORT / ELDERLY

69 pages

ผลของสุขภาพและการสนับสนุนทางสังคมต่อความพึงพอใจชีวิตของผู้สูงอายุไทยในจังหวัดกาญจนบุรี

EFFECTS OF HEALTH AND SOCIAL SUPPORTS ON LIFE SATISFACTION AMONG THE THAI ELDERLY IN KANCHANABURI PROVINCE

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ศศ.ม. (พฤฒิวิทยาเชิงประชากรและสังคม)

คณะกรรมการที่ปรึกษาวิทยานิพนธ์: กุศล สุนทรธาดา, Ph.D., SUZANNE, R. KUNKEL Ph.D., ถาวร สกุลพานิชย์, MD.

บทคัดย่อ

งานวิจัยชิ้นนี้มีวัตถุประสงค์เพื่อศึกษาผลของปัจจัยสุขภาพและการสนับสนุนทางสังคมที่มีผลกระทบต่อความแตกต่างของความพึงพอใจในชีวิตของผู้สูงอายุใน 3 กลุ่มอายุ คือ กลุ่ม 60-69, 70-79 และ 80 ปีขึ่นไป และระหว่างเพศชายและเพศหญิง โดยใช้ข้อมูลทุติยภูมิ จากสถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล ได้ผู้สูงอายุจำนวน 4,424 ท่าน

ผลการวิเคราะห์ข้อมูล พบว่า มีปัจจัยที่มีนัยสำคัญที่มีผลกระทบต่อความพึงพอใจในชีวิตของผู้สูงอายุ ดังนี้ การมีสุขภาพจิตที่ดีมีผลต่อผู้สูงอายุทุกกลุ่มอายุ ($p < 0.001$) สถานะสุขภาพโดยทั่วไป เฉพาะในกลุ่มผู้สูงอายุ 70 -79 ปี ($p < 0.001$) และการมีเงินออมเฉพาะในกลุ่มผู้สูงอายุตั้งแต่ 80 ปีขึ้นไป ($p < 0.001$) เมื่อเปรียบเทียบระหว่างเพศชายและเพศหญิงพบว่า สถานะสุขภาพมีผลต่อความพึงพอใจในชีวิตของผู้สูงอายุทั้งชายและหญิง ($p < 0.001$) ส่วนจำนวนคนที่รู้จักหรือเชื่อถือได้มีผลต่อความพึงพอใจชีวิตเฉพาะผู้สูงอายุหญิง ($p < 0.001$)

ข้อค้นพบจากงานศึกษาวิจัยชิ้นนี้ยืนยัน ว่าปัจจัยด้านสุขภาพยังมีความสำคัญอย่างมากทั้งสุขภาพกาย และ สุขภาพจิต ที่มีผลต่อการเพิ่มความพึงพอใจในชีวิตของผู้สูงอายุไทย ดังนั้นการพัฒนาคุณภาพของการบริการสุขภาพ โดยเฉพาะสุขภาพจิตก็มีความสำคัญอย่างมาก ส่วนการมีเงินออมก็มีความสำคัญรองลงมา โดยเฉพาะกลุ่มที่มีอายุตั้งแต่ 80 ปี ขึ้นไปที่ไม่สามารถทำงาน/ประกอบอาชีพได้ ในขณะที่การส่งเสริมการมีเครือข่ายทางสังคมที่ไว้ใจได้ก็มีความจำเป็นโดยเฉพาะอย่างยิ่งในกลุ่มผู้สูงอายุหญิงที่มักจะมีอายุยืนมากกว่าผู้ชาย

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CHAPTER I
INTRODUCTION

1.1 Background

According to the United Nation (UN) project, the percentage of aging population in Thailand is anticipated to increase faster than developed countries in the past because of modernization and the development of medical health technologies (Knodel, 2011; Savuaniya, 1997). For example, an increase in aging population from 7% to 14% in the developed countries took many decades (over 100 years for France). The UN projections anticipated that Thailand will take only decades (Knodel, 2011).

Figure 1.1 shows trends of the percentage of population that is elderly in Thailand from 1960 to 2030. The percentage of aging population in Thailand has been increasing over time; for example, from about 12% in 2010 to over 25% in 2030. The percentage of elderly will increase to over 20% in the year of 2030, this number is considerably high (Foundation Thai Gerontology Research and Development Institute, 2010). Therefore, Thailand will have the huge number of elderly in the next 20 years.

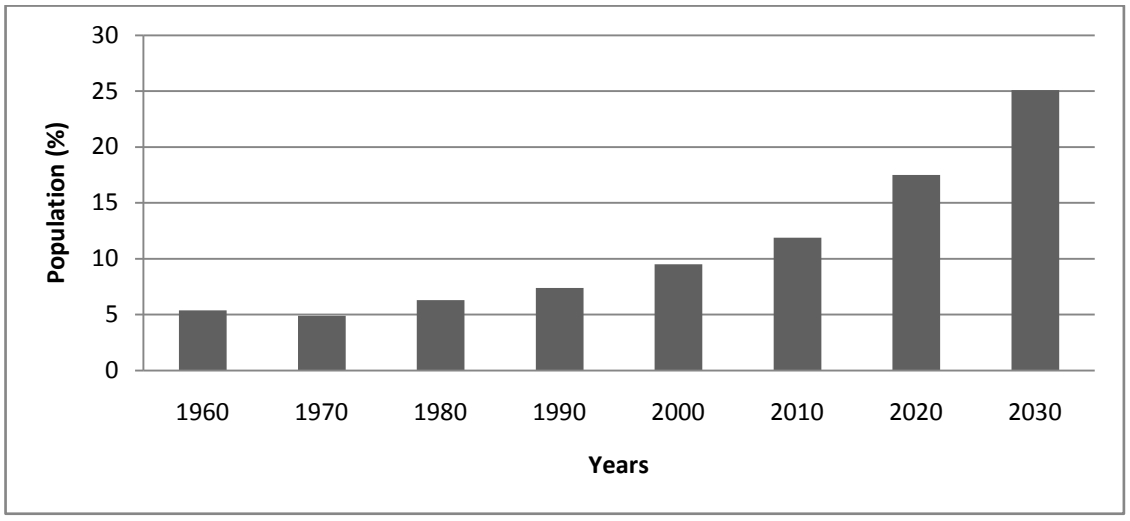

Figure 1.1 The percentage of aging population in Thailand from 1960 to 2030

Source: Foundation Thai Gerontology Research and Development Institute, 2010

Figure 1.2 shows percentage of aging population in Thailand regarding three age groups. Interestingly, the percentage of the elderly who are aged 80 and older will continually increase from 10% to over 12 percent in 2030. An increase in percentage of Thai elderly aged 80 and older indicates that Thai elderly tend to live longer than the past.

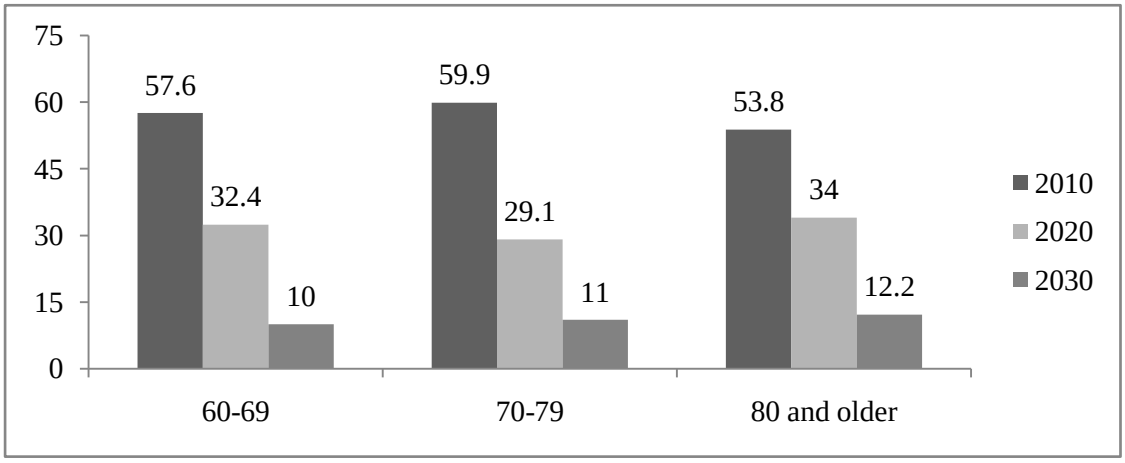

Figure 1.2 The percentage of aging population by age groups (60-69, 70-79 and 80 and older) in 2010, 2020, and 2030

Source: Foundation Thai Gerontology Research and Development Institute, 2010

Jones (2011) stated that there are several reasons for an increase in number of aging population in Thailand. First is fertility decline. For instance, between 2000 and 2005, Thailand's fertility was only 1.8, which was lower than replacement level, and declined to 1.5 in 2009. Second reason was higher life expectancy. Thai population had life expectancy at birth by 68.9 years in 1998 and the number was estimated to increase up to 74 years in 2020 Life expectancy in men will be about 72.2 years and in women about 76.5 years. Women have higher life expectancy than men in Thailand (MOPH, 2011). Bundhamcharoen et al. (2011) found that an increase in life expectancy raised health-related concerns among Thai population in adulthood. An increasing life expectancy of the Thai populations does not really guarantee the achievement of the better health. In contrast, people with increasing age tend to report disability and chronic illness, meaning that they tend to live with functional disorder

and to be more unhealthy (Haseen & Prasartkul, 2011; Knodel, Chayovan & Prachuabmoh, 2011).

With regard to the 2010 Population and Housing Census, Thailand had a population of 65.5 million. The annual population growth rates decreased, for example, from about 2.70 in 1960 to 1.1 in 2000 and to 0.72 in 2010. The annual population growth rates declined due to the decrease in birth rates. The decline in birth rates also resulted in a reduction of household size in Thailand from 3.8 in 2000 to 3.2 in 2010 (NSO, 2011).

1.2 Problem Statement and Rationale of the Study

Kanchanburi province is the third largest of 77 provinces located in the West of Thailand. In 2000, there were 64,006 older people (about 9% of a total population) in this province. This number included 26,336 males and 34,670 females. The proportion of aging populations has increased over years and was higher than 10 percent in 2009. In 2002, there were 57,957 elderly in the province, 26,957 males and 31,000 females. There were 44,379 older persons (over 76%) living in rural areas. The majority of elderly achieved a low educational level, with approximately four years of schooling. Elderly had an average annual income of lower than 50,000 baht or less than 5,000 baht a month, which is lower than the average monthly income of 7,495 in 2010 for the general population (Foundation of Thai Gerontology Research and Development Institute, 2010). Moreover, Thailand's live birth rate per 1,000 populations had declined from 11.79 live births in 2006 to 11.02 in 2010. It means that the number of potential caregivers had declined (NSO, n.d.). Knodel et al. (2011) addressed that a decline in potential support ratio affects wellbeing of elderly as the reproductive age people to provide care and support to elderly in Thailand.

Increasing age results in greater vulnerability to health problems, especially chronic illnesses (Chen, 2001). Subjective well-being or life satisfaction among elderly can be reduced as the age increases, especially among the elderly who live in poverty, low socio-economic status (education, income and employment) and with health problems (Chen, 2001; Chou & Chi, 1999, Diener et al., 1999).

Gray et al. (2001) stated that Thai elderly are more likely to live in poverty and in rural areas. Increasing life expectancy and decline in fertility rate result in higher dependent ratios regarding family care and public finances (Vodopivec & Dolence, 2008). Meaning that, there is more number of elderly and decline in a number of caregivers.

Population aging in Thailand has increased dramatically due to the modernization. Modernization refers as the improvement of medical technologies which keep people alive longer (Chayowan, 2001; Savuaniya, 1997). Within the conditions of prolonged life in Thailand, elderly tend to be more vulnerable because social losses, and health limitations. Even though the modernization helps people live longer and healthier, there are only the people who are able to access the modernized services in, particularly, urban areas. Life satisfaction has been a concern in Thailand, especially elderly. Most of elderly who lived alone are likely have insufficient incomes. Elderly tend to live lone more and more (Chayowan & Knodel, 1999). Seriously, Thai elderly are likely to live in poverty and live in rural more than urban area. Poverty is related to poorer access to services being provided in the society. Therefore, older persons are viewed to rely on supports and cares from his or her partner, children, and others (Haseen & Prasartkul, 2011).

Thailand has implemented monthly allowance from all elderly. Firstly, since 1993, elderly who were poor and no income received monthly allowance as 200 baht (6 US$ each/month). It went up to 500 baht each a month in 2007, all elderly received equally 500 baht a month (14US$ each/month) (Ministry of Public Health & Ministry of Social Development and Human Security, 2007). About 25% of entire elderly were covered by the program. Again, the amount of the money given to the elderly has been criticized as not sufficient for daily expenses of the elderly. Therefore, the government developed the program based age categories, so that, benefits being distributed to all elderly are not equal. Recently, elderly who aged 60-69 years receive 600 baht a month, 70-79 receive 700 baht a month; for 80-89 receive 800 baht a month; and 90 and older receive a thousand baht a month (Government Public Relations Department, 2012). The amount is still small.

Thailand has also implemented universal coverage scheme in order to ensure the equal access to health care of all people, especially the poor and elderly.

Anyways, even though all elderly can access to health services regarding the universal coverage scheme but the quality of care is still weak in Thailand. Thailand has still a long way to improve the quality of health care. Moreover, health expenditure for elderly has increased from 80% of total budget in 2009 to 80% of total budget in 2015. Personal care expenditure has also increased from 29% of total health expenditure in 2009 to 31% in 3015. Aging issue has become a concern in Thailand, especially regarding their health problems (Bundhamcharoen et al., 2011).

Home care is suggested to take care of the elderly as initiative (Sakunphanit, 2006). Still, home care is problematic when the number of caregivers is reduced. Elderly themselves are as the ones to provide care at first. Both physical and mental health problems among the elderly cause obstacles to reduce the subjective well-being of the elderly. For example, depression and physical disorder cause the reduction of life satisfaction. In 2007 they were about 7 million elderly in Thailand, but 43% had good health and the oldest old or elderly aged 80 years and older reported greater health problems. Within the same year, there was about 8% of those elderly lived alone (Apidechkul, 2011; Ministry of Social Development and Human Security of Thailand, 2009). Depression of the elderly is because the migration of children, loss of spouse and loneliness. The empirical evidence shows that the migration of children increases the likelihood of elderly living alone and affects the pathways of the flow of care to elderly (Kanaiaupuni, 2000; Xiang, 2005). Life satisfaction as subjective welling is crucial in relation to drive the ongoing daily life of the elderly. Higher life satisfaction reduces depression and increases coping ability to move on the daily tasks of the elderly along the increase in life expectancy.

The domains of life satisfaction stated that there were four domains of life satisfaction; economic, family, health, and work (Cummins, 1996; Rojas, 2007). All domains are examined in the study.

1.3 Research Questions

Aging population is a major concern in Thailand as it is at the preliminary stage of preparation for unprecedented demographic change. Thailand has several

aging program to serve the number of elderly as nationwide. Elderly are mostly living in rural area and confronting with various barriers to access to available services. Elderly tend to stay at home and look after grand children while their children move elsewhere for jobs. This study is expected to improve their life satisfaction regarding taking its major factors into consideration. Since both formal and informal systems in Thailand have limitations, self responsibility is needed to improve active aging and achieve quality aging in Thailand (Bundhamcharoen et al., 2011). Following research questions were focused to find the major factors that affect life satisfaction among Thai elderly. There are two research questions focused on, as followed.

Research question one is as what are the effects of health, and social support on life satisfaction of Thai elderly, considering three different age groups;60-69; 70-79; 80 and older?? This question was created to examine how life satisfaction differs according the age differences due to the effects of health and social support.

Research question two is as what are the most influential determinants of life satisfaction among Thai male and female elderly? This question was to understand which factors between health and social supports have the most significant effects on life satisfaction between male and female elderly.

1.4 Research Objectives

In order to better understand the life satisfaction of older people in Thailand, this study aims to examine the effects of physical, emotional health, and social supports on life satisfaction of Thai elderly (3 age groups) in Kanchanaburi setting as the case-study. There are sub-objectives as follow:

Objective 1: To study and compare the most influential determinants of life satisfaction among Thai elderly between three age groups (60-69; 70-79; 80 and older);

Objective 2: To study and compare the effect most influential determinants of life satisfaction between Thai male and female elderly aged 60 and older.

1.5 Benefit of the Study

The findings might be beneficial for policy makers to better understand the situations of elderly in terms of specific needs of age classification to facilitate the designation of the new aging programs or improvement of the existing aging program to enhance the quality of life among Thai older persons.

The findings might help to understand the aging situations in Thailand. For those interesting people might better understand how relevant factors, such as, health and social support, influence life satisfaction of elderly.

The results of the analysis are applicable to the existing national plan for older persons in Thailand in relation to the second areas of the plan to improve health and well-being among older persons. The findings might help to support the ideas of the implementation of aging program such as monthly allowance, and universal healthcare coverage. Lastly In the future research, the findings might help research for future research.

1.6 Definitions of the Key Terms

This section provides the description of the key terms which are used in the study. These key terms are; Life satisfaction, happiness and quality of life.

1.6.1. Elderly

World Health Organization defines elderly as the person who is aged 65 and over, but Thailand, elderly is as person aged 60 years and older, the definition was provided at the World Assembly in 1982 (Yuji, 2006)

1.6.2 Life satisfaction

The definition of life satisfaction has been discussed as subjective well being. Life satisfaction is defined as the overall life achieved throughout life span from the past, the present and continually to the future. It is a long-term consequence caused by multiple variables (Sirgy, 2002).

However, determinants of life satisfaction are still questionable and not conclusive. Life satisfaction is defined as the overall life of the persons in their life span. Life satisfaction is itself multidisciplinary term associated with various dimensions. Life satisfaction is the matter of life events' appearance to convince the person's ongoing daily life. For example, higher life satisfaction affects the greater engaging in community activity and providing help to others as well as promoting the intergenerational activities because elderly with higher life satisfaction become more active (Abu-Bader et al., 2002).

1.6.3 Health

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 1948). Psychological health is measured in the study as the consideration of seven sub-items, see table 1.

1.6.4 Social supports

Social support in this study refers to both financial and emotional assistance and support. Financial support is as income, savings and financial support from other sources. Emotional support is measured as the number of children or relatives at home, frequency of contact with children or relatives, and the distance where their children or relatives are living. Emotional support also refers to their neighbors.

CHAPTER II
LITERATURE REVIEW

Life satisfaction is a complex concept. It refers to the perceived overall subjective wellbeing to drive daily tasks of individuals. There are many factors that affect life satisfaction of individuals. Therefore, life satisfaction is differently perceived due to different factors' influences. Therefore, this chapter explains the finding of previous studies of life satisfaction in order to gain better understanding about the relationship between life satisfaction and demographic characteristics, health and social supports from families, relatives, and neighbors.

2.1 Factors of Life Satisfaction

Life satisfaction of the elderly has been shaped by different factors. Chen (2001) suggested that life satisfaction and wellbeing among elderly can be decreased due to the fact that the elderly are more likely to live with physical, psychological health problems, and social losses. Old age and psycho-socio losses are highly interrelated, as well as developing health problems as age increases. Factors that affect life satisfaction of the elderly are, for example, demographic characteristics or personal determinants, such as, age, gender, SES; health status, such as physical health, mental health and other physical disorder; and supports from families, relatives and neighbors (Elder, 200; Moos & Lemke, 1984). These factors are interrelated.

Age as a predictor alone cannot predict life satisfaction of the older persons and the effects of age on life satisfaction or subjective wellbeing remain weak because other conditions of life (Chou & Chi, 1999). Increasing in age can result in health and social limitations. Other factors are likely to affect the life satisfaction than age itself.

Similarly, studies addressed that the effects of gender as a single predictor on life satisfaction are still indecisive. Between male and male elderly life satisfaction

is not really different (Chen, 2001; Chou & Chi, 1999). Other factors, such as education, incomes, supports and health status play more crucial roles in affecting life satisfaction differently among male and female elderly. For example, Thai female elderly with better incomes, receive adequate social support, therefore, their life satisfaction can be increased. Additionally, health conditions positively affect life satisfaction among elderly, in the study of Gray et al (2001), Thai female elderly tend to live with functional disorders more than male elderly. Wellbeing of the female can be reduced when they perceive health problems. Furthermore, the effects of marital status on life satisfaction among male and female elderly are crucial. For instance, male elderly tend to remarriage than female elderly. Marital status is related to the number of care providers at old age. (Diener et al., 1999).

Therefore, social relationships are, such as, remarriage, single, widowhood, and separation and cohabitation, crucial to affect life satisfaction of the elderly in Thailand. In Thailand, cohabitation is not significantly observable, but it still exists in Thai society. Social relationship affects life satisfaction due to the number of caregivers, the public perceptions and financial security in later life. For example, life satisfaction widow elderly tend to have lower life satisfaction as well as those elderly whose partner passed away than those married elderly with the presence of a partner. Reasons are, for example, widowhood causes the reduction of the number of caregivers in later life, both financially and emotionally, and later their subjective wellbeing can be eventually reduced, especially mental health (Diener et al., 1999; Donovan & Halpern, 2002). Social relationship is also interplayed with the number of children and the self control and self perceptions towards challenging in their daily lives (Apidechkul, 2011; Borg et al., 2006). Even though, elderly are widow, but higher number of caregivers and better self control ability and positive perception towards the challenging, they might have higher life satisfaction (Borg et al., 2006). Widow elderly with better health might have higher life satisfaction than those married elderly but poorer health (Donovan & Halpern, 2002). When widow elderly have savings, the life satisfaction might be increased.

Another factor that affects life satisfaction of the elderly is education attainment. For example, elderly with higher educational attainment are likely to satisfy with their lives compared to those elderly with lower (Donovan & Halpern,

2002). Life satisfaction among the elderly becomes highly concerned because the majority of Thai elderly are likely to live in rural and low educational attainment as well as less savings (Gray et al, 2001; Heady & Wearing, 1992).

As the increase in life expectancy of the Thai populations, many elderly are still active for some extent. Many elderly are still active and really want to work. Therefore, working status in old age affects the ways the elderly perceive their daily tasks. Transition from working age to old age causes the change in perception towards working status of the elderly, especially elderly in urban area many elderly are still able to work. Studies stated that stop working at the old age causes depression and the reduction of wellbeing of the elderly, especially in where many people are still working (Delhey, 2004; Donovan & Halpern, 2002). The majority of Thai elderly are living in rural area where many people are not officially working as in formal sectors, but rather working in informal sectors including agricultural work (Chandoevwit & Chawla, 2011; Gray et al., 2001). About 60% of all workers in Thailand work in formal sectors, such as agricultural and service sectors. Most of workers get low paid and are unskilled workers compared to other sectors. However, income of labors tends to decline dramatically around the retirement age (60 years in Thailand), depending on the skills and level of productivity (Chandoevwit & Chawla, 2011). Effects of working status are still questionable. For example, Delhey (2004) stated that even though elderly are not working, they can satisfy with their lives because they have received good supports and are still in a good health.

Life satisfaction of the elderly is also affected by other factors, such as social support from family members, friends, and other people. Social supports are, for example, emotional support and financial support. The differentials of given supports to the elderly depend on who support providers are. According to the 1994 and 2007 Surveys of Older Person in Thailand, about 83% of the Thai elderly received some income from their children. The surveys addressed that three main sources of income of Thai elderly are; children (52%), work (29%), and spouse (6%) (Knodel et al., 2011). Life satisfaction among Thai elderly can be differently individually perceived and rated due to different ways of support come from and size of support.

For example, Supports are from their own children, they elderly can receive emotional and financial support. Among the children, coresiding children and

distant children provide slightly different supports. Distant children provide more financial support, while, coresiding children help housework, and emotional support (Chan, 2005). Migration of children affects the life satisfaction of the Thai elderly. For instance, the elderly tend to live alone when they older due to the loss of spouse and migration of children (Gwozdz & Sousa-Poza, 2009). Their life satisfaction might be reduced. In contrast, increasing in migration of children supports an increasing in the flow of support when children emigrate to work elsewhere, especially when their children left their grandchildren with older parents at home (Chan, 2005). Anyways, the existence of exchange supports between the older parents and children is extremely significant in Thailand (Chan, 2005).

Supports from relatives and neighbors are more emotional support than financial support. However, forms of social supports are being given to the elderly depend on the current situation of the elderly. For example, elderly with mental health problem, emotional support are more given to them and coresiding children play more roles to provide support. Elderly with mental health problem receive better care both financially and emotionally (Copeland, 2004).

Support networks play crucial roles in providing supports for the unemployed elderly. Unemployed elderly with higher support and social networks between children, friends, neighbor, and their life satisfaction can be increased (Abas et al., 2009). Even though, the elderly are unemployed, within Thai culture the responsibilities of providing cares to elderly are put to the family (Bundhamcharoen et al., 2011; Knodel & Seangtienchai, 2005).

Additionally, incomes and savings affect the life satisfaction of the elderly. For example, In Thailand, the majority of elderly have lower income or no income at all. Elderly with low income or no income with life satisfaction or subjective wellbeing can be reduced, seriously in case of elderly with debts (Gray et al., 2001). Elderly tend to live longer and they become more vulnerable to functional disorder due to the fact that when age increase, the elderly tend to experience falling and other functional malfunction. Lower or no income is highly related to health condition. For example, elderly with poor health their incomes are lower because a decline in productivity at workplace, additionally, health status affects ability to work and desire to continue working of the persons (Donovan & Halpern, 2002; Vodopivec &

Dolence, 2008). Also, loss of income cause psychological health problem due to support networks losses, for example, loss of friends, social activities at work, social status, and social support (Bohnke, 2004; Donovan & Halpern, 2002; Putnam, 2001).

Similarly, the elderly with higher saving report higher life satisfaction because when even though the elderly have no children, rather as self care provider, their life satisfaction can be increased because they have high accumulative saving for later life. Depression can be reported by the elderly with financial difficulty (Prasartkul et al., 2011) as low or no incomes and savings, and then their life satisfaction can be reduced. Financial status and saving are related to social status and power relationship. Among the elderly with higher incomes, saving and high SES, they life satisfaction is high because of they have power to control over their life challenges, both expectedly and unexpectedly (Fry, 2000; Lawton, 1996). Coping strategies with life problem and challenges relate to how to perceive life satisfaction among different individuals. Elderly with better composing strategies and material, such as SES, good health conditions and better social support, they can control over their life challenges easier than those with low SES, poor health and low social support (Fry, 2000; Lawton, 1996; Schieman & van Gundy, 2000). Pearlin (1999) perceived control over life challenges relate to better life satisfaction. Supportively, self acceptance to any challenges and self control are related supportively interplayed (Hyde et al., 2003; Borg et al., 2006).

Moreover, studies found that major life events have effects on life satisfaction of the elderly. Major life events that affect life satisfaction among the elderly are, such as, retirement, loss of a partner, friends and migration of children (Chen, 2001; Gwozdz & Sousa-Poza, 2009). The effects of major life events on life satisfaction are, for example, even though, the elderly are already retired but they have accumulated savings and his or her properties, their life satisfaction is higher than those retirees with lower savings or no savings (Heady & Wearing, 1992).

2.2 Conceptual Framework

Theories are used in this analysis to receive better understanding of the disciplinary related factors associated with life satisfaction of elderly. Life satisfaction

is related to multiple aspects as the complexity of aging process. Aging process refers the effects of history, life experiences, and social structures which are all influentially determining the individual characteristics. Therefore, there are two related theories used in the analysis to examine the effects of essential factors on life satisfaction among Thai elderly in Thailand. As noticed that life satisfaction is associated with multi variables, in order to assess life satisfaction, a single theory cannot represent the components of life satisfaction. Therefore, several theories and concepts are included to support and increase the reliability of life satisfaction assessment among older adults in Thailand. Socio-ecological model and Life Course perspective and their descriptions are explained as followed.

2.2.1 Socio-ecological model

The socio-ecological model was developed to describe the relationship between individual factors and surrounding environments. Changes in individual are influenced by environments that individual has experienced in daily life. The first panel states an environmental system to explain the relationship between physical environment, and policy and characteristics of people/residents. The second panel is called personal system to provide personal characteristics, for example, socio-economic status, health status, and others. Next panel is to explain mediator factors as personal characteristics between person and environment relationship. The last panel explains the consequences of the previous panels in terms of stability or adaptability to changes as well-being, and satisfaction (Moos & Lemke, 1984). This concept provide the ideas of multiple dimensions influencing throughout lives of elderly regarding both intrapersonal, interpersonal concepts as well as the influence of surrounding environments , such as policy, living conditions.

2.2.2 Life course perspective

The life course addresses the sequence of age process which is influenced and shaped by social structures and history. The concept describes individuals, cohorts and aging, these are oriented by its experiences. The structures vary from micro to macro levels. The concept is used to guide the research in terms of “problem

identification and formulation, rationales of design, variable selection, and explanatory analysis" (Elder, 2006: 643).

Life course perspective provides the ideas of which relevant variables affect the life satisfaction among elderly. Also, other important factors also intermediate the association between age and life satisfaction, such as, major life events, SES, family relationship, social rules and others.

2.2.3 Active aging concept

"Active aging is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age" (p.12). Active aging concept provides potential components to improve quality of life of the elderly. These potential components are health, participation and security. The term "Active" is used to refer to the participation in "social, economic, cultural, spiritual and other civic affairs". Firstly, health refers to physical, mental and social wellbeing based the definition from World Health Organization. Moreover, the concept addresses that the intergeneration solidarity between elderly and others is important for active aging. Intergeneration solidarity affects the ways of supports being given to elderly and from elderly (World Health Organization, 2002). Hence, health, participation and security are important components that affect quality of life of the elderly.

Following conceptual framework will be used in this analysis comprising of related components from the above theories and models in order to assess life satisfaction among elderly in Thailand, regarding the four main variables, (see Figure 2.1).

2.2.4 Analytic conceptual framework

The conceptual framework is derived from the previous concepts, life course perspective and socio-ecological model to explain the situation of aging in the study. Five factors are taken into consideration to analyze life satisfaction of elderly in Kanchanaburi, Thailand. First dimension is demographic factor, such as age, gender, marital status. In general, life satisfaction of people decreases as age increases. Male and female elderly report different life satisfaction due to some extent. Marital

status refers to family size, self care provision and family care. Married elderly and still living with a partner, report higher life satisfaction in comparison to those who are single and without a partner (Deiner et al., 1999). Second, socio-economic status (SES) refers to educational level, employment and economic status. Elderly in Thailand are likely to live in poverty due to loss of jobs. Elderly with lower SES report lower life satisfaction. High educated elderly are likely to have higher life satisfaction (Donovan & Halpern, 2002; Gray et al., 2001). Third, it is physical health including perceived health conditions and chronic illnesses.

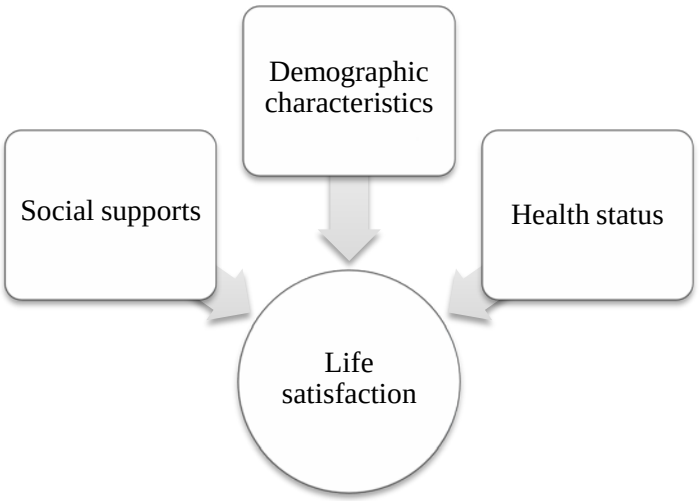

Figure 2.1 Conceptual framework for data analysis

2.3 Hypotheses

There are two main hypotheses regarding health and social support. Each will also have several hypotheses as follows;

2.3.1 Health and life satisfaction

Main hypothesis: there is an association between health and life satisfaction

1.) Elderly with poorer health have negative effects on life satisfaction.

2.) Oldest old with poorer health have the lowest life satisfaction.

3.) Male elderly with better health condition and in the same age groups have higher life satisfaction than female elderly.

4.) Physical health has significant effect on life satisfaction of Thai elderly.

2.3.2 Social support and life satisfaction

Main hypothesis: there is an association between social support and life satisfaction among the elderly.

1.) Elderly with lower social support have negative effects on life satisfaction.

2.) Elderly with supports given by their children have higher life satisfaction compared those who are not given.

3.) Elderly with higher number of friends/neighbors around have higher life satisfaction.

4.) Elderly with higher income have higher life satisfaction.

5.) Oldest elderly with lowest social support have lowest life satisfaction.

6.) Elderly with higher education report higher life satisfaction.

CHAPTER III
METHODOLOGY

3.1 Data Source

3.1.1 The 2011 National Research University (NRU) Survey

The data were obtained from the 2011 National Research University (NRU) project namely "Surveillance Survey on Population, Economic, Social, Cultural and Long-term Care for Thai Older Persons' Health Promotion" conducted by the Institute for Population and Social Research, Mahidol University. The NRU project was conducted as the cross-sectional survey aimed to achieve policy-related recommendations on the promotion of value and capacity of the elderly people. The survey t also focused on health promotion and follow-up trends and situation on population, economics, social, culture and health including, care giving to the elderly andEuroscale to measure psychological health. There were 4 data sets: first dataset, called "Caregivers", included information of caregivers aged 15 and over who took care of elderly in the family, the second dataset, called "Individual", included participants aged 50 and over, and the third dataset, called "Euroscale", follow-up only the elderly who ever participated in the survey in 2007. The last dataset is household information.

3.2 Study Site

Kanchanaburi province is the third largest of 77 provinces located in the West of Thailand. It borders Myanmar on its North-west. The province covers an area of 19,483.14 squared-kilometers. The province is located away from Bangkok by 130 kilometers and has about 83776 (in 2010) inhabitants (NSO, n.d.). There are 13 districts in total. The study focused on 100 villages across the province.

3.3 Research Design

The analysis used the secondary data. Cross-sectional design was used to collect data. The project consisted of 100 villages/enumeration districts were scattered throughout Kanchanaburi province.

3.4 Data collection

Secondary data were used in this study. The NRU survey collected all aging population in Kanchanaburi province as a census. The eligible populations were obtained from headman. The dataset included 10,665 eligible participants who were aged 50 and over. The response rate was 79.43 percent. There were 8,472 interviewed and 1,913 could not participate in the interviews. There were several main reasons for not enrolling in the study. Among the 1,913 non-respondents, about 60% were busy by the time, 19% moved to other areas before the data collection process was performed, 16% were sick by the time, and 5% refused to participate in the study because they did not want to. Face-to-face interview was used to collect data. Before the interview was done, the interviewers were trained by a supervisor to understand to content of the questionnaires. Each subject was asked to provide informed consent. Each interview took about 40 minutes to an hour.

3.5 Study population and sample

Study population was the aging population who aged 60 and older. The NRU survey did census, so the study population and sample were the same. The aging definition was given as persons whose age are 60 years and over (Yuji, 2006). This definition is mostly being used by developing countries where have lower life expectancy than developed countries. In order to facilitate the analytical process, the elderly is divided into three groups including: young old, old-old and oldest old. Younger old refers to those who aged from 60 to 69, old-old are those who aged from 70 to 79, and last group as oldest old are those who aged 80 and over. Of the total sample of 4,424 older persons in this study, there were 56% young old (60-69), 34%

old-old (70-79), and 10% oldest old people (80 and older). And, these older people were 43% males and 57% females.

3.6 Methods of analysis

The SPSS version 11.5 was used to perform the statistic analysis.

3.6.1 Univariate Analysis

Univariate statistical measures were used to show the distribution of populations regarding the personal characteristics, financial support, emotional support, physical health and psychological health. These personal characteristics included education, religions, nationality, Thai language skill, and employment status. Components of financial supports included income, remittances, income from other sources, saving, household income, saving, and household debts. Emotional supports were related to children in a house, distance of children from a house, the frequency of interaction and communication with children, relative (s) in a house, a distance of relative (s), the frequency of interaction and communication with relative (s), distance of neighbor (s) and the frequency of interaction and communication with neighbors. Physical health referred to only perceived health. Psychological health was assessed regarding seven elements of subjective wellbeing: self acceptance, self control, self-confidence, self sympathizing feelings for others' difficulties, self happiness for helping others, self willingness to help others and self belief about receiving cares from family members.

3.6.2 Multivariate Analysis

Binary logistic regression analysis was used to analyze the effects of demographic characteristics, financial support, emotional support, physical health and psychological health on life satisfaction among the elderly. Firstly, the effect of demographic characteristics, social support and health were analyzed for all elderly, next the analysis was performed regarding three age groups, and finally, the effects of the independent variables on life satisfaction were compared between male and female elderly. There were three models given to minimize intercorrelations and possible

confounding effects. First model was only about the demographic characteristics, second model added social support, and the last model included all variables.

3.6.3 Multi-collinearity test

Before the multivariate regression was performed, all variables were tested for multi-collinearity problem to minimize confounding and the interaction among variables in the study.

3.7 Operational Definition of variables

3.7.1 Dependent variable

In this study, life satisfaction was used as dependent variable. Life satisfaction is defined as the measurement of life conditions of the person regarding the person's daily achievement in comparison to another one's aspiration (Campbell et al., 1979). In the question, life satisfaction of older persons was measured by people answering the following question "In general, are you satisfied with your life now?". Life satisfaction is measured through 10-point scale from 1 as not satisfy at all to 10 as very satisfy. The studies of Cantrill Ladder have used two-categorical measure of life satisfaction. Subjects were asked to range their answer from 0-10 as the picture of a ladder with steps. If it was 10, it meant the subject was highly satisfied with his life. For some studies, subjects were categorized as low (0-5) and neutral-high (6-10) (Ravens-Sieberer et al., 2009). In order to analyze data in this study, life satisfaction was classified into two groups: low-neutral (0-7) and high (8-10).

3.7.2 Independent variables

Included independent variables including demographic characteristics, financial support, emotional support, perceived health and psychological health) and its categories were shown in table 1 in Appendix.

3.8 Limitation of the Study

This study has several strengths: the large sample size and rich information about aging related aspects (demographic, health and social domains). In addition, the study's limitations should be recognized. Firstly, the data of the study were obtained at one point in time through performing the cross-sectional design. Therefore, the study can present only the association between health and social support on life satisfaction of the elderly. Secondly, all data were gathered from only the elderly at one point in time. Emotion and feeling towards to aging of the elderly as participants might be as hidden factors affecting their answers. Next, Recall error about history of health and social support can be recognized as bias. Lastly, generalization of the study is considerably limited because the study was only conducted in Kanchanaburi province of Thailand. In order to minimize the biases of the study, the findings should be carefully interpreted.

CHAPTER IV
RESULTS AND DISCUSSIONS

The chapter provides three sections of data analysis. The univariate analysis was used to provide the distribution of population on personal characteristics, financial support, emotional support, physical health and psychological health. Next, the multivariate analysis was performed to analysis on the association between life satisfaction and personal characteristics, financial support, emotional support, physical health and psychological health regarding gender differences and three age groups (60-69, 70-79 and 80 and older). Then the discussion of the findings will be given.

4.1 Univariate analysis

The univariate analysis was used to provide the percentage of population regarding personal characteristics, financial support, emotional support, physical health and psychological health.

4.1.1 Demographic characteristics

Age was divided into three groups of 60-69, 70-79, and 80 and older. More than half (55.5%) of population were aged between 60 and 69 years; another 34% were aged from 70 to 79 years by 34.4%, and the smallest group was those who were aged 80 and older by 10.1%. The population distributions between male female elderly were shown in table 4.2. Total population was 4,424 aging population. There were 42.8% males and 57.2% females (see table 4.1).

Table 4.1 Population distributions by age groups (60-69, 70-79, and 80 and older) and gender

Categorical determinants	**Number of participants**	**Participants (%)**
60-60	2457	55.5
70-79	1522	34.4
80 and older	445	10.1
Total	4424	100.0
Male	1895	42.8
Female	2529	57.2
Total	**4424**	**100.0**

Other demographic characteristics were education, religions, nationality, marital status, Thai language skills, and employment status. Education was categorized into three categories; non-formal education, primary school, and secondary school and higher. The majority of elderly finished only primary school by 65.5%, this is followed non-education by 24.5%, and only 10 percent finished secondary school and higher. For religion, about 98% of the total populations were Buddhists and only 2% were people with other religions. Of the population in this study, 92.2% were Thais, and 7.8% were not Thais, this is very small proportion of population, 60% of elderly were married and still living with a partner. There were 36.4% who ever married including widows, separate and divorced. And there was 3.6% as single. Elderly were more low education, but 72% of the elderly could read Thai and only 28% could not. When employment was looked at, 54% of elderly were unemployed, and 46% employed (see table 4.2).

Table 4.2 Population distributions by education, religion, nationality, marital status, Thai language skills, and employment status among elderly aged 60 and older

Categorical determinants	**Number of participants**	**Participants (%)**
Education		
Non-education	1082	24.5
Primary level	2897	65.5

Secondary and higher	444	10.0
Total	**4423**	**100.0**
Religion		
Buddhist	4324	97.8
Others	99	2.2
Total	**4423**	**100.0**
Nationality		
Thais	4078	92.2
Non-Thais	345	7.8
Total	**4423**	**100.0**
Marital status		
Single	158	3.6
Married still with a partner	2656	60.0
Ever Married	1609	36.4
Total	**4423**	**100.0**
Thai language skill		
Yes	3182	72.0
No	1238	28.0
Total	**4420**	**100.0**
Employment status		
Still working	2028	45.9
Not working	2395	54.1
Total	**4423**	**100.0**

4.1.2 Financial support

The elderly received financial support from various sources. In addition to income and remittances, other sources were included pension, monthly allowance and so forth. About 88% of the elderly received financial support from other sources. Another financial resource for the elderly in later life is savings. Savings refer to money, lands, houses, and other valuable things. There was 63.5% of elderly reported to have savings. The percentage of the elderly who did not have any savings was very high. Interestingly, about 77% of the elderly reported to have no incomes; only 23% of

the elderly reported to have incomes. Moreover, there was about 68% of the elderly reported that their household did not have any income. . Surprisingly, only about 2% reported household income higher than 50,000 baht a year. Additionally, half of the elderly reported to have household debts, which was very high, (see table 4.3).

Table 4.3 Population distributions by financial supports among the elderly aged 60 and older

Categorical determinants	**Number of participants**	**Participants (%)**
Financial support from children		
Yes	3113	70.4
No	1309	29.6
Total	**4422**	**100.0**
Financial support from other sources		
No	535	12.1
Yes	3888	87.9
Total	**4423**	**100.0**
Savings		
Yes	2807	63.5
No	1614	36.5
Total	**4421**	**100.0**
Incomes		
Non	3393	76.9
1-5000 baht a month	757	17.2
5001 and higher	260	5.9
Total	**4410**	**100.0**
Household incomes		
Non	3001	67.8
1-50000	1340	30.3
50001 and higher	83	1.9
Total	**4424**	**100.0**

Household debts		
Yes	1970	44.6
No	2447	55.4
Total	**4417**	**100.0**

4.1.3 Emotional support

Table 4.4 describes three main sources of social support to the elderly (children, relatives and neighbors). The analysis showed that there was about 80% of the elderly had stayed with their children or relatives in the same house and 20% had not. The elderly who had not stayed with their children or relatives were asked to answer questions about where their children and relatives are. About 54% of the elderly said that their children and relatives stayed on other areas, and 36% in the area nearby their house, and 11% did not have any children or relatives. Analysis of the frequency of contact between the elderly and their children or relatives showed that 67% of the elderly reported to very often contact with their children or relatives, 32% often contacted, and 1% never contacted. Apart from children and relatives, neighbor was importantly considered to provide support to the elderly. Each participant was asked about where his or her neighbor (s) lived, 98% said that neighbors were living nearby, 2% said that their neighbor were living in other areas. Again, the participants were asked about the frequency of contact with their neighbors. About 93% of the elderly reported to very often contact with their neighbors, 6% often contacted and 1% never. Emotional support was thought to be affected by the number of people who had been known and trusted by the elderly in a village. For example, about 75% of the elderly reported to have many people who the elderly had known and trusted, 25% had fewer. These data showed the high emotional support that the Thai elderly got from their children or relatives, neighbors and also trusted people.

Table 4.4 Population distributions among the elderly aged 60 and older

Categorical determinants	**Number of participants**	**Participants (%)**
Number of children or relatives at home		
Yes	3523	79.7

No	899	20.3
Total	**4422**	**100.0**
Distance of children or relatives		
No	136	10.6
Nearby	459	35.8
Other areas	687	53.6
Total	**1282**	**100.0**
Frequency of contact with children or relatives		
Never	28	1.3
Often	686	32.1
Very often	1425	66.6
Total	**2139**	**100.0**
Distance of neighbors		
Nearby	4299	98.2
Other areas	78	1.8
Total	**4377**	**100.0**
Frequency of contact with neighbors		
Never	36	.8
Often	254	5.8
Very often	4061	93.3
Total	**4351**	**100.0**
Number of known and trusted people		
Few-moderate	1117	25.3
Many	3301	74.7
Total	**4418**	**100.0**

4.1.4 Physical health

Figure 4.1 shows the distribution of population by self-reported health and chronic illness. About 58% of elderly reported to have good health, 33% had moderate health and 9% had poor health, respectively.

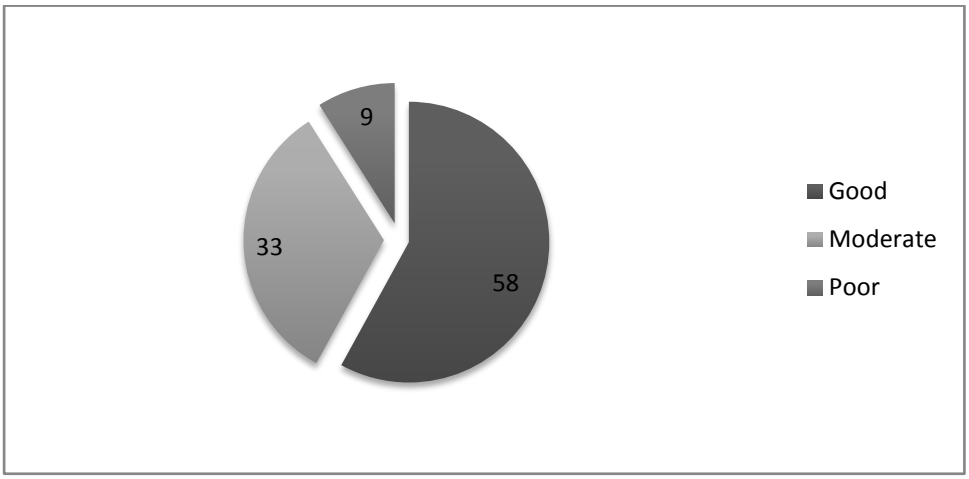

Figure 4.1 Population distributions by perceived health

4.1.5 Psychological health

Figure 4.2 shows the distribution of population aged 60 and older in relation to psychological health. Psychological health is a combination of seven items. These seven items including a) self acceptance of problem, b) self controlled on problems, c) self confidence on dealing with problems, d) self-sympathized feeling for others' difficulties, e) self happiness for helping others, f) self-willingness to help others, and self-belief about receiving helps from family members. The figure shows about 77% of the elderly reported to have good psychological health and 23% had moderate psychological health.

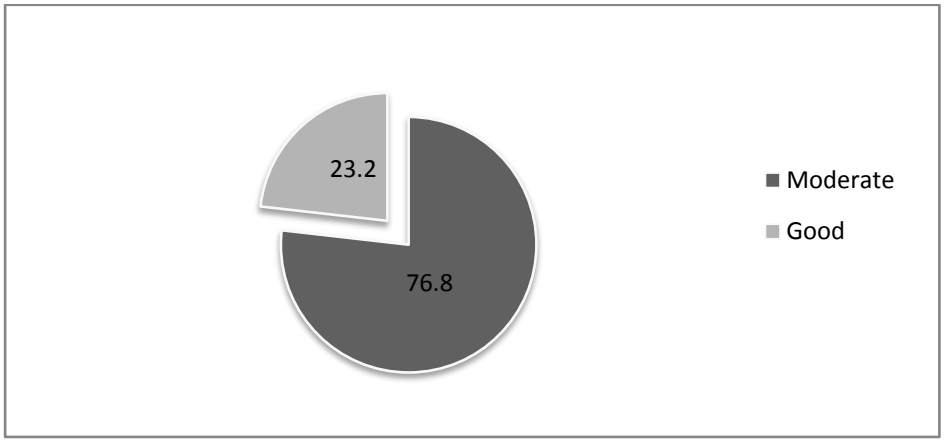

Figure 4.2 Population distributions (%) by psychological health

4.1.6 Life satisfaction

Figure 4.3 shows the distribution of population regarding life satisfaction. About 64% elderly reported to have higher life satisfaction, meaning that those elderly who rated them life satisfaction higher than 7 score. 36% reported to have low to neutral life satisfaction. Low and neutral life satisfaction refers to those elderly reported life satisfaction between 0 to 7 scores out of 10.

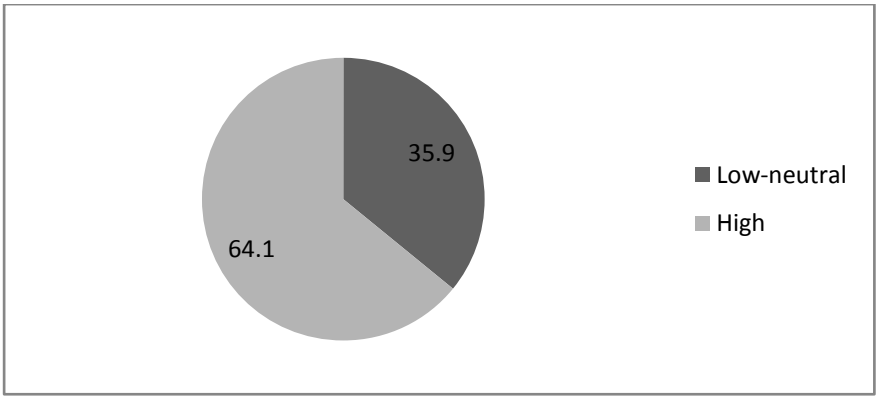

Figure 4.3 Population distributions by life satisfaction

4.2 Multivariate Analysis

Multi-colinearity problem among all variables was tested in order to include the proxy variables and minimize the interaction between independent variable themselves. The VIF scores indicate the multi-collinearity issue; if the score higher than 5 means that there is a multi-collinearity problem among the independent variables. The study used all variables which had the VIF scores lower than 5. These variables included demographic characteristics, health, emotional and financial support (see Table 4.16-4.18, *Appendix*).

The findings from the multivariate will be given on the effects of demographic characteristics, social support and health on life satisfaction in three different models. Model 1 presents the effects of demographic characteristics on life satisfaction, model 2 shows the effects of demographic characteristics, emotional and financial supports on life satisfaction and there is only model 3 that shows the effects of all variables. Models of each age and gender present different factors related to

health and social support because the factors with significant correlation with life satisfaction were only analyzed its effects in multivariate analysis. Even though factors that had non-significant correlation with life satisfaction were included, there was not that significant affected the life satisfaction of the elderly. Therefore, factors with significant correlation with the life satisfaction were better analyzed its effects (see table 2-7, in Appendix).

4.2.1 Effects of Health and Social Supports on Life Satisfaction among All Elderly

The life satisfaction among all elderly aged 60 and older was significantly affected by education, nationality, savings, income, frequency of contact with their children and relatives, and neighbors, the number of known and trusted people in a village of older individual, and both perceived health and psychological health (see table 3 in Appendix). Education, savings, number of known or trusted people, perceived health and psychological health were found to have the strongest effects on life satisfaction among all elderly, which were significant at $p<0.001$. Education positively affected life satisfaction of the elderly. For example, compared to elderly with secondary and higher level, the elderly with non-education level are likely to have less satisfaction of life by 47%; likewise, the elderly with primary level were likely to have less satisfaction of life by 28%. Financially, elderly with saving were 1.4 times more likely to have high life satisfaction compared to those elderly without savings. Moreover, the elderly with fewer number of known and trust in a village were likely to have less satisfaction of life by 34%. Health status, both perceived health and psychological health, significantly affected life satisfaction among the elderly. The elderly with poor and moderate perceived health were likely to have less satisfaction of life by 60% and 40%, respectively. For psychological health, elderly with moderate psychological were likely to have less satisfaction of life than those with good psychological health by 70%.

Nationality, income, number of children or relatives at home and frequency of contact with children or relatives were also found to have significant effects on life satisfaction, which all were significant at $p<0.01$. For instance, Thai elderly were more likely to satisfy with their lives by 1.5 times compared to those

elderly with other nationalities. Income was found to have a positive effect on life satisfaction of the elderly; for example, elderly without income were likely to have less satisfaction of life by 40%, similarly, those with income less than 5001 baht a month by 47%.

Compared to those who very often contacted with their children or relatives, the elderly who never contacted with their children or relatives were likely to have less satisfaction of life by 64%. The frequency of contact with neighbor was found to have significant effects on life satisfaction.

4.2.2 Effects of Health and Social Support on Life Satisfaction of Thai Elderly aged 60-69 Years

The analysis found that life satisfaction among the elderly aged between 60 and 69 was significantly affected by education, income, frequency of contact with their children and relatives, number of known and trust people, and both perceived health and psychological health, (see table 4 in Appendix).

Psychological health ($p<0.001$) was found to have the strongest effects on life satisfaction among the elderly aged 60-69 years. For example, the elderly with moderate psychological health were likely to have less satisfaction of life by 70% compared to those with good psychological health.

Education, savings, number of known or trusted people and perceived health were found to have the significant effects on life satisfaction, which all were significant at $p<0.01$. For instance, elderly with lower educational level than secondary level were likely to have less satisfaction of life, for instance, elderly with non-education and primary school were likely to have less satisfaction of life by 47% and 40%, compared to those elderly with secondary and higher level. Financially, elderly with saving were more likely to satisfy with their lives by 1.5 times compared to those without savings. The frequency of contact with their children and relatives, the elderly who often contacted with children or relatives were likely to have less satisfaction of life by 26% compared to those with very often contacted. Also, the elderly with fewer number of known and trust people in a village were likely to have less satisfaction of life by 35% in comparison to those elderly with many known and trust people in a village. Both perceived health and psychological health were found to have significant

effects on life satisfaction among Thai elderly. For instance, the elderly with poor perceived health were likely to have less satisfaction of life than those with good perceived health by 50%. Similarly, those with moderate health were found to have less satisfaction of life by 20% compared to those with good perceived health status.

4.2.3 Effects of Health and Social Support on Life Satisfaction of Thai Elderly aged 70-79

The analysis showed that life satisfaction among the elderly aged 70 and 79 years was significantly affected by nationality, income, frequency of contact with children and relatives, perceived health and psychological health, (see table 5 in Appendix).

Perceived health and psychological health had the highest effects on life satisfaction among the elderly in Thailand, which all were significant at $p<0.001$. For example, the elderly with poor perceived health were likely to have less satisfaction of life by 56% compared to those with good perceived health. Likewise, the elderly with moderate perceived health were likely to have less satisfaction of life by 40% compared to those with good perceived health. Elderly with moderate psychological health were likely to have likely to have less satisfaction of life by 60% compared to those with good psychological health.

Income and frequency of contact with children or relatives also significantly affected life satisfaction among Thai elderly, which all were significant at $p<0.01$. For example, compared to those with income of 5001 baht and higher per month, elderly with no income they were likely to have less satisfaction of life satisfaction by 80%. The elderly with income less than 5001 bath per month were likely to have less satisfaction of life by 80%. Moreover, the elderly who never contacted with their children and relatives were likely to have less satisfaction of life by 90%, compared to those with very often contacted with their children and relatives.

4.2.4 Effects of Health and Social Support on Life Satisfaction of Thai Elderly aged 80 and older

Savings, perceived health and psychological health had the strongest effects on life satisfaction among the elderly, which all were significant at $p<0.001$

(see table 6 in Appendix). For example, the elderly aged 80 and older with saving were more likely to satisfy with their lives by 1.86 times compared to those without savings. Both perceived health and psychological health were found to have significant effects on life satisfaction. For example, the elderly with poor perceived health were likely to have less satisfaction of life by 70% and those with moderate perceived health by 58% compared to those with good perceived health status. For psychological health, the elderly with moderate psychological health were likely to have less satisfaction of life by 82% compared to those with good psychological health. Additionally, the number of known or trusted people also had significant effects on their life satisfactions. For instance, the elderly with fewer number of known and trust people were likely to have less satisfaction of life by 53% compared to those with many number of known and trust people in a village.

4.2.5 Effects of Health and Social Support on Life Satisfaction among Female Elderly

Number of known or trusted people, perceived health and psychological health were found to had the highest effects on life satisfaction among the female elderly, which all were significant at $p<0.001$ (see table 7 in Appendix). For example, female elderly who never contacted with their children and relatives were likely to have less satisfaction of life by 73%. Also, female elderly, who never contacted with their neighbor, were likely to have less satisfaction of life by 84% compared to those who very often contacted with their neighbors. Moreover, elderly with fewer number of known and trust people in a village were likely to have satisfaction of life by 40% compared to those with higher number of known and trust people. For perceived health status, female elderly with poor perceived health and moderate perceived health were likely to have less satisfaction of life by 60% and 49%, respectively, compared to those with good perceived health. Mentally, female elderly with moderate mental health were likely to have less satisfaction of life by 73% in comparison with those with good mental health. Moreover, saving also had the significant effects on life satisfaction of the elderly, which was significant at $p<0.01$. Female elderly with savings were more likely to satisfy with their lives by 1.55 times compared to those without savings.

4.2.6 Effects of Health and Social Support on Life Satisfaction among Male Elderly

The analysis found that perceived health and psychological health had the strongest effect on life satisfaction of the male elderly (see table 8 in Appendix). For example, elderly with poor perceived health were likely to have less satisfaction of life by 64% and those with moderate perceived health by 34% compared to those with good perceived health. For psychological health, male elderly with moderate psychological health were likely to have less satisfaction of life by 65% compared to those with good psychological health. Moreover, life satisfaction of male elderly was highly affected by the educational level ($p<0.01$). For instance, male elderly with non-education were likely to have less satisfaction of life by 57% compared to those with secondary school and higher.

4.2.7 Comparison of Effects of Health and Social Support on Life Satisfaction

Among those elderly aged 60-69, psychological health had the most effects on life satisfaction of Thai elderly, and followed by saving. Likewise, among those 70-79, psychological health and perceived health significantly affected life satisfaction. Life satisfaction among those aged 80 and older was highly affected by savings, perceived health and psychological health. Psychological health was the one that had significant effects life satisfaction of the elderly regardless age and gender.

For instance, elderly with savings were likely to satisfy with their lives by 1.48 times ($p<0.01$) among those aged 60-69, and 1.86 times ($p<0.001$) among those aged 80 and older, compared to those elderly without savings. Number of known and trusted people in a village highly affected life satisfaction among those aged 60-69 and 80 and older. Elderly with fewer number of known and trusted people were less likely to satisfy with their lives by 35% ($p<0.01$) for those aged 60-69, by 54% ($p<0.01$) for those aged 80 and older. Moreover, compared to those with good perceived health, elderly with poor perceived health were likely to have less satisfaction of life, by 52% ($p<0.01$) for those aged 60-69, by 56% ($p<0.001$) for those aged 70-79, and by 72% ($p<0.001$) for those aged 80 and older.

For both male and female elderly, perceived health and psychological health had the strongest effects on their life satisfactions. For example, among those elderly with moderate perceived health were likely to have less satisfaction of life compared to those elderly with good perceived health, by 39% (0.001) for females and 34% ($p<0.001$) for males. Compared to those elderly with good perceived health, elderly with poor health were likely to have less satisfaction of life by 63% ($p<0.001$) for females, and 64% (0.001) for males. Moreover, psychological health highly affected life satisfaction among female and male elderly. Elderly with moderate psychological health were likely to have less satisfaction of life, by 73% ($p<0.001$) for females and 65% ($p<0.001$) for males, compared to those elderly with good psychological health.

Apart from perceived health and psychological health, number of known or trusted people had the highest effect on life satisfaction among the female elderly as well. For example, the female elderly with fewer number of known and trusted people in a village were likely to have less satisfaction of life by 40% ($p<0.001$).

4.3 Discussion

Life satisfaction among the elderly is affected by multiple factors such as health and social support. As age increases, the socio-ecological model addresses that, throughout the life span, different individuals have experienced different circumstances even through people who are in the same cohort. The model suggests that life satisfaction can be improved in relation to the improvement of financial support, savings, health and resources. Moreover, personal system is addressed in the model to present the factors affecting life satisfaction as health, socio-economic status, personal characteristics, and social relationship (Moos & Lemke, 1984).

Health is one of the major factors which affect life satisfaction of the elderly in Thailand. For example, the analysis found that perceived health and psychological health highly affected life satisfaction among both male and female elderly. Similarly, when the age differences were included, health again had the strongest effects on life satisfaction for all three age groups, 60-69, 70-79 and 80 and older. Reasons for this are, for example, health is related to multi aspects of life such

as resources, ability to work, ongoing of daily life, ability to perform day life, self control and self confidence (Pearlin, 1999; Hyde et al, 2003; Vodopivec & Dolence, 2008; Bohke, 2004; Putnam, 2001). The elderly with better tend to have higher life satisfaction due to better coping skills and resources. The Elderly with poorer perceived health tend to have lower life satisfaction than those with better perceived health. Moreover, health problem is as a result of financial difficulties and other major life events (Copeland, 2004; Fry, 2001; Lawton, 1996; Prasartkul et al, 1992; Schieman et al., 2001).

Life satisfaction of the elderly is also affected by the support from other persons. For example, the study found that the elderly with higher number of known and trusted people tend to have higher life satisfaction. The size of supports given to the elderly is sometimes related to the health conditions of the elderly. For example, the elderly with mental health problem can receive supports from their children more than those with good health (Copeland, 2004). These elderly might have higher life satisfaction than those with elderly who have mental health problems and do not have adequate supports. Life satisfaction can be different in relation to different support given to the elderly and the needs of the elderly (Moos & Lemke, 1984).

Apart from perceived health and psychological health, financial situation was found to have the strongest effects on life satisfaction of the elderly, especially among the elderly aged 80 and older. Bohnke (2004) stated that saving and income are related to social status. Increasing saving or incomes refer to an increase in social status of the elderly. Reducing income and saving cause health problem such as depression among the elderly. Depression becomes core serious when the elderly who used to have high social status, later receive lower or no incomes or saving. And then, their life satisfaction might be decreased. For example, among those elderly aged 80 and older with saving had higher life satisfaction than those without saving by 86% (OR = 1.86). The elderly can suffer from depression due to no income or saving, depending on where the elderly are. For example, depression can become more severe when the elderly stays in where many elderly are still working and earn higher income or savings (Delhey, 2004; Donovan & Halpern, 2002). In this case, their life satisfactions might be reduced. Moreover, saving is related to sufficient resources for their daily expenses, health care costs, cost for other dependent, such as grandchildren

(Chen, 2001). Higher saving leads to better life satisfaction (Chen, 2001; Chou & Chi, 1999; Gray et al., 2001). Even though, most of the elderly are likely to have no savings and incomes, they cam also receive financial support from other sources, such as, remittance, pension and monthly allowance.

The elderly tend to live alone (Diener et al., 1999), recently due to migration of children (Gwozdz & Sousa-Poza, 2009) and a decline in fertility rates (Jones, 2011). Life satisfaction might not change because flow of support increases between the older parents and the distant children because the distant children send remittances back home (Chan, 2005), while, other children at home also provide helps, such as, housework. Fro example, the analysis found that about 70% of the elderly received remittances from their distant children. At the same time, the older parents also provide help to their children in other forms of support as well, for example, raising grandchildren, housework, and emotional supports (Chan, 2005). Nevertheless, life satisfaction of the elderly depends on the size, quality of support and frequency of contact with children or relatives, and also number of known or trusted people.

Other factors which significantly affect life satisfaction of the elderly are, for example, Life course perspective explains that the interaction between life satisfaction and age which is intermediated with major life event, SES, family relationship, social status, social rules and others (Elder, 2006). Major life events refer to retirement, sickness, poor health, loss of partner, migration of children and so forth. Higher migration of children means to reduce the number of elderly care providers at home, might also affect the frequency of contact or interaction between children and old parents, and causes the reduction of known and trusted people in a village (Gray et al. 2011). The analysis showed that about 20% of elderly have experienced of migration of children. Major life events play essential rules in terms of self-control and problem solving strategy (Apidechkul, 2011; Borg et al., 2006). The reduction of number of caregivers might cause the depression and the reduction of life satisfaction among the elderly. For example, the elderly with lower number of children or relatives reported lower life satisfaction among both male and female elderly. Moreover, the elderly with higher number of known and trust people in a village, their life satisfaction is increased, especially among the female elderly. Life course perspective addresses that life satisfaction is affected by social network (Elder, 2006). Higher

number of known and trusted people refers to the greater shared problems and solving strategies among the people. Elderly might feel better when they can talk to someone in the village to share problems. Network among peoples in the community happens to reduce the loneliness of the elderly, especially those who stay alone. Loneliness causes depression and reduces life satisfaction (Diener et al., 1999). The number of social network sometimes does not guarantee the quality of support. However, increasing social contact reduces loneliness and promotes the better life satisfaction, especially those elderly who stay alone.

CHAPTER V
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Conclusion section provides the summary of the study, regarding the objective of the study, research question, hypotheses, methodology, and key findings and also recommendations.

5.1.1 Objective and Research Question

This study aims to examine the effects of physical, emotional health, and social supports on life satisfaction of Thai elderly in Kanchanaburi province, in three different age groups and between male and female elderly. In order to achieve the objective of the study, two main research questions were focused. The first research question was as what are the effects of health, and social support on life satisfaction of Thai elderly, considering three different age groups; 60-69; 70-79; 80 and older?. The first research question aimed to examine the effects of health and social support on life satisfaction among Thai elderly in relation to three different age groups. Another research question was as what are the most influential determinants of life satisfaction among Thai male and female elderly? The second research question aimed to determine the effects of health and social support on life satisfaction among Thai elderly regarding gender difference

5.1.2 Hypotheses

The study included hypotheses according to two different factors considerably. These two factors were health and social support. Firstly hypothesis related the effects of health on life satisfaction were as; there is an association between health and life satisfaction. Effects of health on life satisfaction of Thai elderly were hypothesized such as elderly with poorer health have negative effects on life satisfaction; oldest old with poorer health have the lowest life satisfaction; male

elderly with better health condition and in the same age groups have higher life satisfaction than female elderly; and physical health has an significant effect on life satisfaction of Thai elderly. Secondly, main hypothesis related to social support. There is an effect of social support on life satisfaction among Thai elderly. Effects of social supports were hypothesized such as elderly with lower social support have negative effects on life satisfaction; elderly with supports given by their children have higher life satisfaction compared those who are not given; oldest elderly with lowest social support have lowest life satisfaction; elderly with higher number of friends/neighbors around have higher life satisfaction; elderly with higher income have higher life satisfaction; and elderly with higher education have higher life satisfaction.

5.1.3 Methodology

The study used quantitative design and secondary data to analyze the effects of health and social supports on life satisfaction among Thai elderly. The secondary data were obtained from the NRU survey conducted by the Institute for Population and Social Research at Mahidol University between September and December 2011.There were two analytic methods used, univariate analysis and multivariate analysis (binary logistic regression analysis). Before performing the binary logistic regression analysis, the multi-colinearity test was performed in order to minimize the effects of the interaction between independent variables. The chi-square test was also used to test the correlation between the factors (health and social support) and the life satisfaction. Effects of health and social support were presented in three models regarding each age group and gender through showing the Odds Ratios (ORs) and statistical significance (p-value).

5.1.4 Key findings and discussions

Effects of health and social supports on life satisfaction are different regarding different individuals. Regardless of age and gender, major determinants, such as education, nationality, savings, income, frequency of contact with their children or relatives and neighbors, the number of known and trust people in a village, and both physical health and psychological health. These variables are positively

associated with life satisfaction. All hypotheses are correct and proved by the findings of the study as followed.

Life satisfaction among the elderly is various regarding age and gender differences. The major determinants of life satisfaction among the elderly aged 60-69 years, are education, income, saving, frequency of contact with their children or relatives, number of people whom the elderly have known in a village and trust people, perceived heath and psychological health. These factors have positive effect on life satisfaction. It was observed that only psychological health was strongly associated with life satisfaction of this age group ($P<0.001$) while other variables were not so strong ($P<0.01$). Likewise, among those aged 70-79 years, they are likely satisfy with their lives when they are Thais, have higher income, very often contact with their children or relatives. Importantly, both physical health and psychological health positively and strongly affect their life satisfaction. Among the oldest old or elderly aged 80 and older, their life satisfaction is strongly affected by health both perceived health and psychological health, including saving. Interestingly, life satisfaction of Thai elderly for all age groups was strongly and positively affected by good health, especially psychological health, while social support had less effect. Both mental and physical health problem negatively affects the productivity, self control and self confident (Pearlin, 1999; Hyde et al, 2003; Vodopivec & Dolence, 2008; Bohke, 2004; Putnam, 2001). Sometimes, the size of supports given to the elderly is related to the health conditions of the elderly as well. For example, the elderly with mental health problem can receive supports from their children more than those with good health (Copeland, 2004). Although life satisfaction is influenced by multiple factors, the findings from this study showed that health condition was a major determinant of life satisfaction of Thai elderly in all age groups. Elderly in older age who had good health status and psychological health were more likely to have better life satisfaction compared to those who had poor health because health conditions affected ability to work and desire to continue working of the Thai older persons. In Thailand, majority of elderly were still working and major determinants of employment are health conditions such as no limitation of activities in daily living (ADL), no/ very few chronic illness and perceived good health status (Soonthorndhada, 2011). These findings were consistence with other studies in

western countries (Chen, 2001 and Vodopivec & Dolence, 2008). In addition, psychological health condition was also the most important factor because they had power to control over life problems (due to illness, loneliness and depressions) and challenges (due to work/not work, participation in community' activities). In Thailand, Buddhist concept is viewed by many part of daily life among elderly, particularly the important of religion to calm one's mind. However, many forms of social supports from children or relatives, and neighbors were given to the elderly played significant roles to provide both financial and emotionally support which also affected on psychological health and life satisfaction.

To answer the first research question, the major factors affected life satisfaction among Thai elderly regarding different age groups are shown in Table 5.1.

Table 5.1 Summary of Significant Factors Affected Life Satisfaction among Thai Elderly by Age

Significant factors	Statistic significance
All elderly	
Education	P<0.001
Savings	P<0.001
Number of known and trusted people	P<0.001
Perceive health	P<0.001
Psychological health	P<0.001
Nationality	P<0.01
Income	P<0.01
Number of children or relatives at home	P<0.01
Frequency of contact with children or relatives	P<0.01
60-69 years	
Psychological health	P<0.001
Education	P<0.01
Saving	P<0.01
Number of known and trusted people	P<0.01
Perceived health	P<0.01
70-79 years	
Perceived health	P<0.001

Psychological health	P<0.001
Income	P<0.01
Frequency of contact with children or relatives	P<0.01
80 and older	
Savings	P<0.001
Perceived health	P<0.001
psychological health	P<0.001
Number of known or trusted people	P<0.01

The life satisfaction among male elderly is significantly positively affected by saving, income, number of known and trust people, perceived health and psychological health. Similarly, the life satisfaction among female elderly is positively affected by nationality savings, frequency of contact with children and relatives, neighbors and the number of known and trust people in a village, perceived health and psychological health. Saving and incomes refer to sufficient resources for their daily expenses, health care costs, cost for other dependent, such as grandchildren (Chen, 2001). Higher savings and income lead to better life satisfaction and eventually better quality of life (Chen, 2001; Chou & Chi, 1999; Gray et al., 2001). Elderly with poorer perceived health tend to have lower life satisfaction than those with better perceived health. Health problem is as a result of financial difficulties and other major life events (Copeland, 2004; Fry, 2001; Lawton, 1996; Prasartkul et al, 1992; Schieman et al., 2001). Both mental and physical health interplayed with other factors. Health problems negatively affect the productivity, self control and self confident (Pearlin, 1999; Hyde et al, 2003; Vodopivec & Dolence, 2008; Bohke, 2004; Putnam, 2001). Both male and female elderly with poor health are less likely to satisfy with their lives due to the reduction of self confidence, self control, and work productivity.

To answer research question 2, major factors affected life satisfaction between male and female elderly, are shown in table 5.2.

Table 5.2 Summary of significant factors affected life satisfaction by gender

Significant factors	Statistic significance
Female	
Number of known or trusted people	P<0.001
Perceived health	P<0.001
Psychological health	P<0.001
Savings	P<0.01
Male	
Perceived health	P<0.001
psychological health	P<0.001
Education	P<0.01

5.2 Recommendations

There are two sections of recommendation. First is about policy recommendations and another one is recommendation on further research.

5.2.1. Policy recommendations

1.) Income and savings also have effects on life satisfaction among all elderly**. Job opportunity for elderly** is needed to be more available in society, especially for those elderly who are still actively working. **Income-generating activities** are needed to be implemented among the elderly to use their traditional competency and skills to make money for their daily expenses.

2.) **Information provision to elderly** should be also implemented. Elderly with better education can access more available social facilities and information in society.

3.) Health stakeholders should specify **health programs for elderly and health promotion as primary care** is also needed to prevent elderly from major health problems, especially mental health.

4.) Savings become more important, especially the oldest old. **Ways to save should be implemented. People should be aware of saving at younger age.**

5.) Policy stakeholders should ensure the appropriate activities for elderly regarding all social and health conditions of the elderly to provide **the community engagement of elderly** to reduce the psychological problems due to loneliness and depressions.

6.) **Social support** from people in a community should be included, especially for female elderly.

7.) Family and community care should be more promoted because family and community members are essentially care providers for elderly.

5.2.2 Recommendation for further research

Due to the limitation of the studies in terms time short time frames and it is not a longitudinal survey, next researcher can recruit more times and perform longitudinal survey to find the changes in life satisfaction due to change in life satisfaction-related factors over times. Another limitation is that life satisfaction can be influenced by many factors; this study did not consider geographical difference among the elderly as urban and rural elderly. Therefore, next research might include other factors.

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APPENDIX

Table 1 Multicolinearity test of all variables

Life satisfaction factors	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
1. Age		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2. Gender	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3. Education	2	2		2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4. Religion	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5. Nationality	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6. Marital status	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7. Thai language skills	2	2	1	2	2	2		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8. Employment	3	3	3	3	3	3	3		3	3	3	2	2	3	3	3	3	3	3	3	3	3
9. Remittance	3	3	3	3	3	3	3	3		2	3	3	3	3	1	3	3	3	3	3	3	3
10. Financial support from others	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1
11. Saving	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1
12. Income	2	2	2	2	2	2	2	1	2	2	2		1	2	2	2	2	2	2	2	2	2
13. Household income	2	2	2	2	2	2	2	1	2	2	2	2		2	2	2	2	2	2	2	2	2
14. Household debts	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1
15. Child or	3	3	3	3	3	3	3	3	1	2	3	3	3	3		3	3	3	3	3	3	3

relative in house																						
16. Distance of child or re3lative	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1
17. Frequency of interaction with child or relative	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
18. Distance of neighbor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1
19. Frequency of interaction with neighbor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1
20. Number of known or trusted people	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1
21. Perceived health	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
22. Psychological health	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Table 2 Categories and level of measurement of variables

Determinants	Descriptive	Categories	Measurement
Dependent variable			
Life satisfaction	Are you happy with your life?	0=Low - Neutral 1= High	**Nominal**
Independent variable			
1. Demographic variables			
1.1 Age	Participants are who aged 60 and older.	0=60-69 1 =70-79 2 =80 and older (ref.)	**Interval**
1.2 Gender	Both male and female	0=Male 1 = Female (ref.)	**Dummy**
1.3 Education	The highest educational level they obtained. - What is your highest schooling level?	0=Non - education 1=Primary school 2= Secondary and higher (ref.)	**Nominal**
1.4 Religion	Buddhist, other religions refer to those Muslim, Christians and etc. - What is your religion?	0- Buddhists 1= Others (ref.)	**Dummy**
1.5 Nationality	Nationality includes Thai and others as those are Burmese, Laos and others - What is your nationality?	0= Thai 1 = Non-Thai (ref.)	**Dummy**
1.6 Marital 1.7 status	Marital status refers to three categories including - What is your marital status?	0=Single 1= Married still with a partner 2 = Married but separate (ref.)	**Nominal**
1.8 Thai	Refers to the ability of	0 = Yes	**Dummy**

language skill	the elderly in term of reading Thai language - Can you read Thai language?	1 = No (ref.)	
1.9 Employment	Refers to current employment status of the elderly, occupations are, for example, civil servants, government workers, self-business. - Are you currently employed?	0 = Employed 1=Unemployed (ref.)	**Dummy**
2. Financial support variable			
2.1 Remittance	Refers to money that the elderly receive from distant children - Do you receive money from your children?	0 = Yes 1 =No (ref.)	**Dummy**
2.2 Financial support from other sources	Refers to other sources of financial support, apart from remittances, and income. Sources are, for example, monthly allowance, pensions, and so on. - Apart from incomes, do you receive money from other sources?	0=No 1= Yes (ref.)	**Dummy**
2.3 Savings	Refers to any forms of savings, there are, for	0 = Yes 1 = No (ref.)	**Dummy**

	example, money, houses, lands and so on. - Do you have any savings?		
2.4 Incomes	Refers to only salary that the elderly get paid monthly from work. Income is considered as average income per month - How much do you get paid per month?	0=No 1=1-5000 2= 5001 and over (ref.)	**Ordinal**
2.5 Household income	Refers to income from all family members per month. - How much does everyone in the household make a month?	0=No 1=1-50000 2=50001 and over (ref.)	**Interval**
2.6 Household debts	Refers to debts in the house, it could be from himself or herself or other family members - Does your household have debts?	0=Yes 1 = No (ref.)	**Dummy**
3. Emotional support			
3.1 Number of children or relatives at home	Refers if older persons have any relatives or children in the same house	0= Yes 1= No (ref.)	**Dummy**

	- Are there any children living in the same house with you? - Are there any relatives living in the same house with you?		
3.2 Distance of children and relatives	Refers to where older persons' children or relatives are, if they are not staying in the same house with the elderly - If there are no children living in the same house, where are they living? - If there is no relative living in the same house, where are they living?	0= No 1 = Nearby 2 = Other areas	**Nominal**
3.3 Frequency of contact with children or relatives	Refers to the frequency of contact of the elderly with their children or relatives, for example, face-to-face chatting, through cell-phone etc. These two items were combined into one item. - How often do you contact, talk face-to-face /on a phone/ write a letter with	0=Never 1= Often 2 = Very often (ref.)	**Nominal**

	your children? - How often do you contact, talk face-to-face /on a phone/ write a letter with your relatives?		
3.4 Distance of neighbors	Refers to distance of neighbor from the house of the elderly - Where are your neighbors living?	0 = Nearby 1 = Other areas (ref.)	**Nominal**
3.5 Frequency of contact with neighbors	Refers to the frequency of contact of the elderly with their neighbors through face-to-face talk, phone. - How often do you contact, talk face-to-face /on a phone/ write a letter with your neighbors?	0= Never 1=Often 2= Very often (ref.)	**Nominal**
3.6 Number of known and trust people	Refers to the available number of people that elderly have known well and the elderly can trust them. - How many people who you really know them very well in the village? - How many people who you can really trust?	0= Few - moderate 1=Many (ref.)	**Dummy**

4. Health variable			
4.1 Perceived health .	Refers to overall health is self rated. - Compared to other people at the same age, how is your health status?	0 =Poor 1= Moderate 2= Good (ref.)	**Nominal**
4.2 Psychological health	Psychological health consisted of seven sub-items, including, - Are you able to accept the occurrence of any serious problems? self-acceptance, - Are you able to control your mind when any obstacles happen? self control, - Are you confident to face any unexpected changes in your life? self-confident, - Do you feel sympathetic when you feel others' difficulties in their lives? feeling sympathized for other's life difficulties, - Do you feel happy when you provide helps and supports to others? self-	0 = Moderate 1 = Good (ref.) The total score was 49. There were three groups included, as group 1 with poor as 0-16 scores; moderate as 17- 32 scores; good as 33-49 scores. There is no Poor category because no participants reported 16 or lower scores. .	**Dummy**

	happiness, - Do you provide helps and supports to others when you can? self-willingness to help others, - When you get serious illness, do you believe that you will get taken care of by your family members? Self-belief.	

Table 3 Odds ratios of life satisfaction among elderly aged between 60 and older

Categorical Determinants	**Model I**	**Model II**	**Model III**
	Odds ratios	**Odds ratios**	**Odds ratios**
Age groups (Ref. 80+)			
60-69	.925	.944	.903
70-79	.941	.954	.940
Gender (Ref. Female)			
Male	.941	.937	.894
Education (Ref. Secondary and higher)			
Non-education	.690*	.491**	.539**
Primary school	.697***	.676**	.723*
Nationality (Ref. Others)			
Thais	1.504***	1.682***	1.522***
Thai language skill (Ref. No)			
Yes	1.372**	.917	.894
Remittance (Ref. Yes)			
No		.960	.882
Savings (Ref. No)			
Yes		1.494***	1.399***

Income (Ref. 5001 and higher)			
Non-income		.519**	.597*
1-5000		.498**	.530**
Number of children/relatives at home (Ref. No)			
Yes		1.195	1.230
Frequency of contact with children/relatives (Ref. Very often)			
Never		.460	.356
Often		.854	.831
Frequency of contact with children/relatives (Ref. Very often)			
Never		.439	.280
Often		.508	.615
Number of known and trust people (Ref. Many)			
Few-moderate		.611***	.658***
Perceived health (Ref. Good)			
Poor			.415***
Moderate			.658***
Psychological health (Ref. Good)			
Moderate			.306***
Constant	1.492***	2.968***	10.204***
-2 Log likelihood	*5698.904*	*2652.046*	*2505.762*
Cox & Snell R Square	*.014*	*.057*	*.115*

*Statistic significance: P<0.05 * ; P<0.01**; and P<0.001****

Table 4 Odds ratios of life satisfaction among elderly aged between 60 and 69

Categorical determinants	**Model I**	**Model II**	**Model III**
	Odds ratios	**Odds ratios**	**Odds ratios**

Education (Ref. secondary and higher)			
Non-education	.55**6	.497*	.530*
Primary school	.554***	.565**	.591**
Nationality (Ref. Others)			
Thais	1.401*	1.409	1.325
Thai language skill (Ref. No)			
Yes	1.353	1.072	1.001
Saving (Ref. No)			
Yes		1.512***	1.477**
Income (5001 and higher)			
Non-income		.612*	.705
1-5000		.515**	.580*
Number of children/relatives at home (Ref. No)			
Yes		1.344*	1.269
Frequency of contact with children/relatives (Ref. Very often)			
Never		1.093	.782
Often		.771*	.740*
Frequency of contact with neighbors (Ref. Very often)			
Never		.876	.536
Often		.729	.763
Number of known and trust people (Ref. Many)			
Few-moderate		.615***	.653**
Perceived health (Ref. Good)			
Poor			.483**
Moderate			.751*
Psychological health (Ref. Good)			.290***
Moderate			
Constant	1.774***	2.549***	7.967***

-2 Log likelihood	*3248.136*	*1489.369*	*1408.511*
Cox & Snell R Square	*.019*	*.053*	*.109*

*Statistic significance: P<0.05 * ; P<0.01**; and P<0.001****

Table 5 Odds ratios of life satisfaction among elderly aged between 70 and 79

Categorical determinants	**Model I**	**Model II**	**Model III**
	Odds ratios	**Odds ratios**	**Odds ratios**
Education (Ref. Secondary and higher)			
Non-education	1.490	.783	.900
Primary school	1.417	1.219	1.408
Religion (Ref. Others)			
Buddhists	2.286	2.551	2.337
Nationality (Ref. Others)			
Thai	1.715**	2.090*	1.889*
Thai language skill (Ref. No)			
Yes	1.557	.754	.747
Saving (Ref. No)			
Yes		1.378	1.227
Income (Ref. 5001 and higher)			
Non-income		.199**	.220**
1-5000		.233**	.220**
Household debts (Ref. No)			
Yes		.863	.825
Frequency of contact with children/relatives (Ref. Very often)			
Never		.111**	.100**
Often		.982	.948
Number of known and trust people (Ref. Many)			

Few – moderate		.665	.737
Perceived health (Ref. Good)			
Poor			.445***
Moderate			.604**
Psychological health (Ref. Good)			
Moderate			.391***
Constant	*.251*	*1.725*	*5.136*
Chi-square	*33.830****	*55.120****	*91.395****
-2 Log likelihood	*1961.364*	*946.338*	*903.332*
Cox & Snell R Square	*.0.22*	*.071*	*.116*

*Statistic significance: P<0.05 * ; P<0.01**; and P<0.001****

Table 6 Odds ratios of life satisfaction among elderly aged between 80 and older

Categorical determinants	**Model II**	**Model III**
	Odds ratios	**Odds ratios**
Saving (Ref. No)		
Yes	2.013***	1.861**
Frequency of contact with neighbors (Ref. Very often)		
Never	2.172	2.860
Often	.511*	.601
Number of known and trust people (Ref. Many)		
Few – moderate	.395***	.469**
Perceived health (Ref. Good)		
Poor		.288**
Moderate		.420***
Psychological health (Ref, Good)		
Moderate		.184***
Constant	*1.695*	*10.165*
Chi-square	*33.972****	*83.084****
-2 Log likelihood	*522.038*	*467.905*

Cox & Snell R Square	*.078*	*.178*

*Statistic significance: P<0.05 *; P<0.01**; and P<0.001****

Table 7 Odds ratios of life satisfaction among female elderly aged 60 and older

Categorical determinants	**Model I**	**Model II**	**Model III**
	Odds ratios	**Odds ratios**	**Odds ratios**
Education (Ref. Secondary and higher)			
Non-education	.724	.533	.661
Primary level	.596**	.602	.748
Nationality (Ref. Others)			
Thais	1.534***	1.802*	1.747*
Thai language skill (Ref. No)			
Yes	1.695***	1.125	1.077
Financial support from other sources (Ref. Yes)			
No		.755***	.827*
Saving (Ref. No)			
Yes		1.644	1.548
Number of children/relatives at home (Ref. No)			
Yes		1.032	.987
Frequency of contact with children/relatives (Ref. Very often)			
Never		.340*	.273*
Often		.921	.897
Frequency of contact with neighbors (ref. Very often)			
Never		.431	.169
Often		.554	.635
Number of known and trust people (Ref.			

Many)			
Few – moderate		.573***	.613***
Perceived health (Ref. Good)			
Poor			.424***
Moderate			.611***
Psychological health (Ref. Good)			
Moderate			.279***
Constant	1.306	1.349	4.599
Chi-square	*45.596****	*72.110****	*148.853****
-2 Log likelihood	*3252.631*	*1378.246*	*1290.885*
Cox & Snell R Square	*.018*	*.064*	*.129*

*Statistic significance: P<0.05 * ; P<0.01**; and P<0.001****

Table 8 Odds ratios of life satisfaction among male elderly aged 60 and older

Categorical determinants	Model I	Model II	Model III
	Odds ratios	Odds Ratios	Odds Ratios
Education (Ref. Secondary and higher)			
Non-education	.510**	.430**	.435**
Primary school	.747	.710	.728
Religion (Ref. Others)			
Buddhists	1.494	.796	.867
Nationality (Ref. others)			
Thais	1.520	1.544	1.323
Thai language skills (Ref. Yes)			
No	.886	.777	.718
Savings (Ref. No)			
Yes		1.328*	1.243*
Income (Ref. 5001 and higher)			
Non		.595	.700
1-5000 baht a month		.543*	.587*

Number of children/relatives at home (Ref. No)			
Yes		1.316	1.294
Frequency of contact with children/relatives (Ref. Very often)			
Never		.784	.553
Often		.764*	.755*
Distance of neighbor (Ref. Other area)			
Near by		2.020	2.346
Number of known and trust people (Ref. Many)			
Less to moderate		.636**	.695*
Perceived health (Ref. Good)			
Poor			.366***
Moderate			.666***
Psychological health (Ref. Good)			
Moderate			.356
Constant	*1.142*	*1.625*	*4.138*
Chi-square	*35.124****	*47.249****	*104.110****
-2 Log likelihood	*2429.399*	*1292.265*	*1227.719*
Cox & Snell R Square	*.018*	*.046*	*.098*

*Statistical significance: P<0.05 *; P<0.01**; and P<0.001****

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