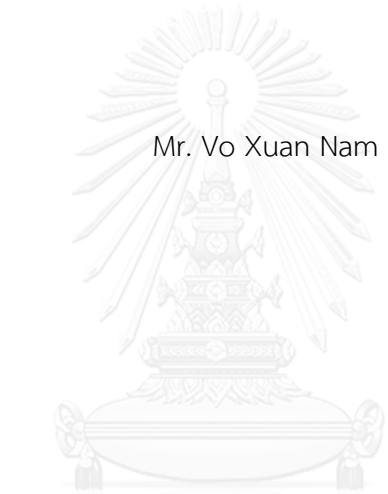
MEASURING QUALITY OF LIFE AMONG ELDERLY PEOPLE IN SOUTHERN VIETNAM USING WHOQOL-OLD MODULE

Mr. Vo Xuan Nam



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การวัดคุณภาพชีวิตของผู้สูงอายุในตอนใต้ของสาธารณรัฐสังคมนิยมเวียดนามโดยการใช้ WHOQOL-OLD Module

นายโว ฮซวน หนัม

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต
สาขาวิชาเศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ
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Thesis Title	MEASURING QUALITY OF LIFE AMONG ELDERLY PEOPLE IN SOUTHERN VIETNAM USING WHOQOL-OLD MODULE
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Field of Study	Health Economics and Health Care Management
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โว ฮซวน หนัม : การวัดคุณภาพชีวิตของผู้สูงอายุในตอนใต้ของสาธารณรัฐสังคมนิยมเวียดนามโดยการใช้ WHOQOL-OLD Module (MEASURING QUALITY OF LIFE AMONG ELDERLY PEOPLE IN SOUTHERN VIETNAM USING WHOQOL-OLD MODULE) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ดร.นพพล วิทย์วรพงศ์, 92 หน้า.

คุณภาพชีวิตของผู้สูงอายุกำลังเป็นประเด็นสำคัญ เพราะหลายประเทศในโลกกำลังเข้าสู่สังคมสูงอายุของสังคมอย่างรวดเร็ว องค์การอนามัยโลกได้คิดค้นเครื่องมือหรือแบบสอบถามที่สามารถนำไปใช้วัดระดับคุณภาพชีวิตของผู้สูงอายุในเชิงปริมาณได้ แบบสอบถามดังกล่าวมีชื่อว่า WHOQOL-OLD โดยในประเทศเวียดนามนั้น คุณภาพชีวิตของผู้สูงอายุยังไม่เคยมีการศึกษามาก่อน แม้ว่าจะมีเครื่องมืออย่าง WHOQOL-OLD แล้วก็ตาม นอกจากนี้ ความสัมพันธ์ระหว่างคุณภาพชีวิตและลักษณะส่วนบุคคลของผู้สูงอายุก็ยังไม่เคยได้รับการศึกษามาก่อนเช่นกัน งานวิจัยนี้จึงจะมีวัตถุประสงค์เพื่อเติมเต็มช่องว่างข้างต้นในบริบทของประเทศเวียดนาม

งานวิจัยนี้เริ่มจากการทดสอบว่าแบบสอบถาม WHOQOL-OLD เหมาะสมกับบริบทของประเทศเวียดนามหรือไม่ โดยในเบื่องต้น ได้เก็บข้อมูลของผู้สูงอายุจำนวนสามสิบคน เพื่อทดสอบความเที่ยงตรงและความเชื่อมั่นของแบบสอบถาม โดยใช้การคำนวณ Cronbach's Alpha coefficient (0.889) และการใช้วิธีการวิเคราะห์ Confirmatory Factor Analysis (CFA) ผลที่ได้นั้นยืนยันได้ว่าแบบสอบถามดังกล่าวสามารถใช้ได้กับประเทศเวียดนาม จากนั้นจึงได้ดำเนินการสัมภาษณ์แบบเผชิญหน้ากับผู้สูงอายุ ที่อาศัยอยู่ในนครโฮจิมินห์ ประเทศเวียดนาม จำนวนทั้งสิ้น 442 คน โดยได้บันทึกเก็บข้อมูลลักษณะส่วนบุคคลของผู้สูงอายุและคำถามที่เกี่ยวข้องกับแบบสอบถาม WHOQOL-OLD แล้วจึงใช้ SPSS version 22 และ AMOS version 21 ในการวิเคราะห์ข้อมูลคุณภาพชีวิตของกลุ่มตัวอย่าง และประเมินความสัมพันธ์ระหว่างลักษณะส่วนบุคคลและระดับคุณภาพชีวิต

*ผล*การศึกษา พบว่าคะแนนรวมของคุณภาพชีวิตของผู้สูงอายุในนครโฮจิมินห์เท่ากับ 97.56 (+/- 9.75) คะแนน และแม้ว่าเกือบร้อยละ 84 ของผู้สูงอายุในกลุ่มตัวอย่างจะมีโรคอย่างน้อยหนึ่งประเภท และร้อยละ 27 กล่าวว่าตนเองมีสุขภาพไม่ดี แต่คะแนนคุณภาพชีวิตที่สูงนั้นแสดงให้เห็นว่า แม้ผู้สูงอายุจะมีสถานะสุขภาพและสถานะของโรคไม่ดี แต่ก็ยังคงมีคุณภาพชีวิตที่ดีได้ จากการวิเคราะห์ข้อมูลด้วย t-test, ANOVA test และสมการถดถอยพหุคูณ (multivariate regression) ที่ระดับความเชื่อมั่นร้อยละ 5 พบว่าอายุ สถานภาพการศึกษา สถานะรายได้ และการอาศัยอยู่ในชนบท เป็นปัจจัยที่มีผลต่อคุณภาพชีวิตของกลุ่มตัวอย่างทางสถิติ โดยการเพิ่มขึ้นของอายุทำให้คุณภาพของชีวิตลดลง ระดับการศึกษาเพิ่มขึ้นก็ทำให้ คุณภาพชีวิตลดลง อาจเป็นเพราะความคาดหวังต่อการใช้ชีวิตของผู้สูงอายุกลุ่มนี้สูง นอกจากนี้ ยังพบว่าการมีรายได้เพียงพอใช้จ่ายและการอาศัยยู่ในชนบทมีความสัมพันธ์เชิงบวกกับคุณภาพชีวิตของ ผู้สูงอายุ

โดยสรุป งานวิจัยนี้ชี้ให้เห็นว่าเครื่องมือ WHOQOL-OLD นั้นมีระดับความเที่ยงตรงและความเชื่อมั่นสูงในบริบทของประเทศเวียดนาม และงานวิจัยนี้นับเป็นจุดเริ่มต้นสำหรับการประเมินคุณภาพชีวิตของผู้สูงอายุในประเทศเวียดนามด้วยเครื่องมือที่ทั่วโลกให้การยอมรับ ในอนาคต การศึกษาควรพิจารณาสร้างแบบสอบถาม WHOQOL-OLD ใหม่ที่พิจารณาอัตลักษณ์ทางวัฒนธรรมของประเทศเวียดนามร่วมด้วย

สาขาวิชา เศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ ลายมือชื่อนิสิต .....

ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

ปีการศึกษา 2557

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VO XUAN NAM: MEASURING QUALITY OF LIFE AMONG ELDERLY PEOPLE IN SOUTHERN VIETNAM USING WHOQOL-OLD MODULE. ADVISOR: NOPPHOL WITVORAPONG, Ph.D., 92 pp.

Quality of life of the elderly is an important issue, as many countries in the world are rapidly entering an aging society. The World Health Organization (WHO) has launched an instrument to quantitatively measure the level of quality of life of the elderly, known as WHOQOL-OLD. In Vietnam, quality of life of the elderly has not been investigated, despite the availability of WHOQOL-OLD, and relationships between quality of life and characteristics of older persons are unknown. This study attempts to fill these gaps in the context of Vietnam.

In order to test whether the WHOQOL-OLD instrument is applicable to the Vietnamese context, based on a purposively sampled group of 30 older people, reliability and validity tests of the instrument were conducted. The calculation of Cronbach's Alpha coefficient (0.889) and a Confirmatory Factor Analysis (CFA) were performed, confirming the applicability of the instrument. Face-to-face interviews with 442 elderly people (≥ 60 years) living in Ho Chi Minh City, Vietnam, were subsequently conducted and primary data on personal characteristics of the elderly and questions related to the WHOQOL-OLD instrument were collected. Using SPSS version 22 and AMOS version 21, a measure of quality of life of the sample was calculated and the relationships between personal characteristics and the derived measure of quality of life were explored.

The average total score of quality of life of elderly people in the sample is quite high at 97.56 (+/- 9.75). The score should be viewed against the fact that nearly 84% of elderly people in the sample report suffering from at least one type of disease and nearly 27% report having poor health. The results indicate that, although health status of the elderly in Vietnam may not be good, they still have a good quality of life. Based on t-tests, ANOVA tests and a multivariate regression, at the 5% level, age, education status, income status and rural residence are factors that statistically affect their quality of life. As age increases, the quality of life declines. When education level increases, quality of life also declines, possibly because their expectations about quality of life are higher. Older adults with enough income and living in a rural area also have a higher quality of life.

This study suggests the WHOQOL-OLD module is applicable in the Vietnamese context. This research provides a starting point on which the quality of life of elderly people in Vietnam can be assessed with an internationally standardized instrument. Future research should consider developing a more Vietnam-specific version of the WHOQOL-OLD instrument, addressing unique cultural contexts.

Field of Study: Health Economics and Health Care Management Student's Signature .....
Advisor's Signature .....
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I also would like to express my thanks to my colleagues who helped me with very useful information to do this research.

With kindest regards,

VO XUAN NAM

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LIST OF ABBREVIATIONS

AUT	Autonomy
CFA	Confirmatory Factor Analysis
DAD	Death and Dying
GSO	General Statistics Office
HDI	Human Development Index
INT	Intimacy
KMO	Kaiser-Meyer-Olkin
PPF	Past, Present, Future activities
PRECEDE	Predisposing, Reinforcing, and Enabling Constructs in Educational/Environmental Diagnosis and Evaluation
PROCEED	Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development
QOL	Quality of Life
SAB	Sensory Ability
SOP	Social Participation
TFR	Total Fertility Rate
UN	United Nations
UNDESA	United Nations – Department of Economic and Social Affairs
UNFPA	United Nations Fund for Population Activities
VHLSS	Vietnam Household Living Standards Survey
VNCA	Vietnam National Commission of Ageing Vietnam
VND	Vietnam Dong
WHO	World Health Organizations
WHOQOL	World Health Organizations Quality of Life
WHOQOL-OLD	World Health Organizations Quality of Life Instrument – Older Adults Module

Chapter 1

Introduction

1.1. Introduction

Within the past few decades, an increase in the number of ageing population has posed a challenges worldwide [1-3]. In the middle of 20th century, 4 percent of the population in developing countries was 65 years old and above. That percentage has increased by approximately 6 percent and it is forecasted to reach nearly 15 percent by mid-century [4]. According to the United Nations, the global share of people aged 60 years and over increased from 9.2 percent in 1990 to over 11 percent in 2013 and will reach around 21 percent by 2050. Globally, the number of elderly people [2] is predicted to more than double, from 841 million persons in 2013 to more than 2 billion in 2050 [5]. In almost country, the rate of people aged 60 years and above is increasing faster in comparison with other age groups [1-6]. In Southeast Asia, nearly 8 percent the population is old [7].

The elderly population has grown speedily in Vietnam, which is one of the Southeast Asian countries. In 2013, the number of people aged 65 years and older reached 7 percent of the population [8]. This is higher than the average for Southeast Asia at present, (36% versus 30% correspondingly) [9]. The percentage of citizens aged 60 and above increased from 6.7 percent in 1979 to 9.2 percent in 2009 [10]. The majority of older people in Vietnam lives in rural areas - 72.9 percent - with inconvenient living conditions, as their children migrate from rural to urban areas for better job opportunities. Therefore, it is critical to understand the requirements for elderly care in Vietnam [10].

Nowadays, the improvement in the quality of life of the elderly has become at the forefront of national policies globally. Policies to promote healthy ageing exist in many countries, e.g. Bangladesh, Sri Lanka, Nepal, Maldives, India, Korea, Myanmar, Indonesia, and Thailand [11, 12]. With the growth of aging population in Vietnam growing speedily, there are many challenges. Although the average age in Vietnam is higher than other countries of similar income levels but the quality of the population is below average. Vietnam is ranked 105 of 117 in terms of the Human

Development Index (HDI) [13-15]. While the average life expectancy was relatively high at 72.8 years in 2009 [16-18], but the average number of healthy life years of the Vietnam was low at 58.2 years [13-15, 19, 20].

In Vietnam, there has been some research on the elderly, but most of them focus on the health, disease patterns, and health management only … There is little indepth research regarding quality of life of the elderly in Vietnam. There are only 8 researches about this, for example: Health-related quality of life and its determinants, among older people in rural Vietnam (2010), Exploring quality of life among elderly in Hai Duong province, Vietnam: a rural-urban dialogue (2012), Patterns of subjective quality of life among older adults in rural Vietnam and Indonesia (2012), Quality of life and its related factors of elderly in rural Vietnam (2013), and Quality of life among people living with hepertension in a rural Vietnam community.

The World Health Organization (WHO) has launched an instrument to quantitatively measure the level of quality of life of the elderly, known as WHOQOL-OLD. Since quality of life of the elderly in Vietnam has not been investigated, despite the availability of WHOQOL-OLD, relationships between quality of life and characteristics of older persons are unknown. This study attempts to fill these gaps in the context of Vietnam.

1.2. Research Questions

- ✓ What is the level of quality of life of the elderly in Southern Vietnam based on the WHOQOL-OLD instrument?
- ✓ Is WHOQOL-OLD instrument reliable and valid in the context of Southern Vietnam?
- ✓ What factors determine quality of life of the elderly in Southern Vietnam?

1.3. Research Objective

General Objective

To apply the WHOQOL-OLD module to measure the quality of life of elderly people in Southern Vietnam.

Specific Objectives

1. To test the level of reliability and validity of the WHOQOL-OLD module in the case of Southern Vietnam.

2. To evaluate the level of quality of life of elderly people in Southern Vietnam based on the WHOQOL-OLD instrument
3. To identify factors affecting quality of life of elderly people in Southern Vietnam

1.5. Scope

Subject

Elderly people who are 60 years old or over living in Southern Vietnam, specifically Ho Chi Minh City, are included in the study.

Geographical Setting

This research was conducted in 2 districts of Ho Chi Minh City (1 urban district and 1 rural district) in 2015.

Area and Population

Ho Chi Minh City has the total area of 2,095.6 square kilometers; as of December 2012 according to statistics from the Bureau of Statistics of Ho Chi Minh city, over 2 million households, and they were divided into 19 urban districts and 5 rural districts.

There were altogether 13,040 poor households, accounting for 0.71% of the total number of households in the city. In particular, the number of poor families with elderly members was 2,731 households, i.e. 20.94% of the total number of poor households.

The total number of elderly people in 2013 was 469,353, accounting for 6.06% of the Ho Chi Minh population.

1.6. Possible benefits

Vietnam has not developed a specialized instrument which can be used to measure quality of life for elderly people. And while studies that measure quality of life exist, they use the WHOQOL-100 and/or WHOQOL-BREF instruments which are appropriate for those in the working ages only. They do not address adequately quality of life of the elderly. The study is one of the first studies to use the WHOQOL-OLD instrument that is specifically designed to evaluate quality of life of elderly people in Vietnam.

Chapter 2

Background

2.1. Definition of "elderly people"

The definition of elderly or older people varies from nation to nation, depending on the variation in the point of view of society. In most developed countries, the term "elderly" or "older person" is defined as those who are older than 65 years old and over [21]. In Japan, for example, the current definition refers to cut-off of 65 but there have been some proposals to change the definition to be 75 years of age and older [22, 23].

According to World Health Organization (WHO), the person who is 60 years old and above is defined as the older person [2]. In some national level researches, the older people, 50 years of age and older, was used as subjects to study [24-26]. Elderly people in Vietnam are determined based on the age of the United Nations standards and also specified in the Vietnam's Law on the Elderly - 2009: The elderly are the full 60 years and older [27]. In this study, the older persons were classified as those who are 60 years of age and above.

2.2. Aging and dimensions of aging

Although scientific development with rushing speed, but up today, people still do not have a full understanding of the true origin and nature of the elderly. There are many theories developed to solve this problem. The views of a number of main theories as follows:

Aging is a natural and practically unavoidable process. Yet elder people are often the subject of bad jokes and pessimistic stereotypes, and many people in our society anxiety growing old [28]. According to Rose M. R, aging is "a persistent decline in the age-specific fitness components of an organism due to internal physiological deterioration" [29].

Hayflick theory (as quoted by Khue P., 1993) said that aging is an inherent process in the cell. Degradation theory is based on the decline in the recovery system inside cells or organs in the body [30]. The immune theory said that aging is mainly associated with immunodeficiency. The immunocompromised makes the body lose

the ability to defend themselves from pathogens (especially bacteria and viruses). The more you get older, the more you get decreasing resistance, including cancer cells ... The theory above may associate with other organic and interactions cause aging [30-32]. Besides that, there are also a number of other theories as old hypoxic tissues, due to tissue changes, nervous system disorder, caused by capillary costly, etc…

The aging process happens in the body to varying degrees, is characterized by decreased adaptability, usually present as quickly losing strength in both physical and mental. If the self-regulatory mechanisms do not meet the requirements of the body, it often leads to fatigue characteristics when trying to. Besides reducing the effect of the functional parts of the body, it also appears compensation mechanism to ensure policy stability for the new equilibrium morphology in a certain extent. Aging rate depends on the ability to regulate the bodies adaptive.

Thus, the origin of aging for the 21st century remains a mystery. While we do not yet understand the exact origin of the aging body, the research to find out the factors involved in improving life expectancy and quality of life for elderly people is a situation meant practical significance.

2.3. Elderly situation

2.3.1. Elderly in the world

Ageing population marked success of the demographic transformation by combining rapid decrease, decline in fertility and mortality and fertility decline is that the most decisive factors leading to changes in the age structure, population distribution of each age group (percentage of adults and older people increases in the population structure, the proportion of young population compared to the total population decreased markedly) and the median age of the population continues to grow. To review issues aging population, the demographers based on indicators such as life expectancy, the proportion of the population age 60 and over, and 65 and above, the median age [4, 5].

In most developing countries, the person from 65 years and older are considered seniors. But many developing countries, the landmark age is inappropriate. Currently, there is no uniform standard for the country, however, the United Nations accepted markers to determine the population is aged 60 years old or older in which

classified into three groups: Beginner aged (60-69 years old) , middle-aged (70-79 years old) and old age (80 or older) … [4-6, 26].

Aging occurs when fertility decline in life expectancy while maintaining constant or increased in the older age group. In the period 1950-2005, not only at reducing neonatal mortality but mortality rates in all other age groups also declined. The fertility is decline in most countries around the world. The twentieth century has witnessed a revolution in longevity. Average life expectancy of the world has increased by 20 years, is expected to reach 67.2 years old in 2010 and 75.4 years by 2050 the population of many countries will be aging rapidly and the number of states part facing the growing reality. This achievement results along with population growth during the first half of the twenty-first century, it is projected in the period 2005-2050, half of the population increase is due to increased number of people over 60 years old (60+), number children under 15 years old will decrease slightly. 60+ of the world's population will triple, from 673 million (246 million live in developing countries) in 2005 to 2 billion in 2050 (406 million in developing countries). The proportion of elderly people increased from 10% in 1998 to 15% in 2025 [5, 6, 33, 34].

Ageing population will become a major problem in developing countries. The developing countries will be the proportion of the elderly have the highest and fastest, according to forecasts of the elderly in this area will increase 4 times in the next 50 years. The proportion of elderly is expected to rise from 8% to 19% in 2025, while the proportion of children will decrease from 33% to 22%. More than half the population lives in the old 80+ developing countries, is expected to rise to 71% in 2050. Aging rates in developing countries are faster growth than in developed countries (e.g. France took about 75 years, while in Singapore only took 19 years), resulting in risk occurs "Growing old before Getting rich" rather not " Getting rich before Growing old " [6, 34].

Among the elderly, women are more than men. Increasing age, this difference is expressed as large (**as Table 2.1.**). The status of older women from around the world requires prioritization of policy actions. Aging affects women and men are not the same way. Being aware of this is essential to ensure equality between men and women fully and develop effective measures to solve the problem. Therefore, it is

important to take gender differences into all policies, programs and legislation [5, 6, 34, 35].

Table 2.1. *Global ageing indicators*

Life expectancy	**2011 - 2012**	**2050 projection**
Life expectancy at birth by sex (men/women)	67.1 / 71.6	73.2 / 78.0
Life expectancy at 60 by sex (men/women)	18.5 / 21.6	20.9 / 24.2
Life expectancy at 80 by sex (men/women)	7.1 / 8.5	8.3 / 9.8
Population		
Number of people aged 60+	809,742,889	2,031,337,100
Number of people aged 80+	114,479,616	402,467,303
Number of people aged 100+	316,600	3,224,400
Percentage of people aged 60+	11.5	21.8
Percentage of people aged 80+	1.6	4.3
Sex ratio: Number of men aged 60+ per 100 women aged 60+	83.7	86.4

Source: *UNDESA, Population Division 2012[34]*

There are major differences in population distribution between developed countries and developing countries. While the majority of elderly people in developed countries live in urban areas, the majority of elderly people in developing countries live in rural zones. According to forecasts, by 2025, 82% of the population in developing countries will live in urban areas, whereas in developing countries this ratio is less than a half.

Also in developing countries, the majority of elderly people living in the family for generations. This difference implies that the operational policy for the elderly will not be the same between the developed and developing countries [4-6, 33-37].

2.3.2. Elderly in Vietnam

Demographic characteristics *[6, 20, 25, 26]*

In the past three decades, the population of Vietnam has fluctuated size and age structure. The rising proportion of elderly people in Vietnam is due to three key factors: declining birth rate, death rate and increasing life expectancy reduction. The total fertility rate (TFR) declined from 5.25 in 1975 to 3.8 in 1989 and 2.03 in 2009. The mortality rate for children under 1 year of age in 2009 was 16 percent, compared to 20 percent in 1999. The average life expectancy was 72.8 years old population in 2009, increasing by 4.6 years old and 8 years compared with 1999 and 1989. The population growth rate dropped from an average of 2.4% per year in the period 1975 - 1989 down to 1.7% in the period 1989-1999, and 1.2% for the period 1999-2009. Therefore, the age structure of the population of Vietnam is changed. The proportion of children (0-14 years) is declining; the proportion of the population of working age (15-59); and the percentage of elderly people (aged 60 or older) have also increased. Table 2 shows that, if 1979 is the base year for the period 1979 to 2009, the total population increased by 1.6 times. The children population decreased by nearly half; population of working age increased by 2.08 times, while the elderly population increased by 2.12 times. Thus, the elderly population seems to have increased more quickly compared with all other groups of the population in this period.

Table 2.2. *Age structure of the Vietnamese population, 1979-2009*

Year	Number of persons (millions)				Percentage of total population		
	Total	0-14	15-59	60+	0-14	15-59	60+
1979	53.74	23.40	26.63	3.71	71.80	51.30	6.90
1989	64.38	24.98	34.76	4.64	39.20	53.60	7.20
1999	76.33	25.56	44.58	6.19	33.00	58.90	8.10
2009	85.79	21.45	56.62	7.72	25.00	66.00	9.00

Source: *Population and Housing Census 1979, 1989, 1999 and 2009*

Forecast of General Statistics Office (GSO, 2010) for the period 2009 - 2049 shows that the consequences of trends in the age structure is the aging index will rise rapidly and the potential support ratio will significantly reduce **(Table 2.3.)**. The results show that the aging index will exceed 100 by the year 2032. This is a time when Vietnam began elderly population than the child population.

Table 2.3. *Aging index and Potential Support Ratio in Viet Nam, 1979-2049*

Year	1979	1989	1999	2009	2019	2024	2029	2034	2039	2044	2049
Aging Index	16	17	24	36	50	65	85	107	124	141	158
Potential Support Ratio	7.44	7.43	7.33	7.27	5.29	4.60	3.83	3.27	2.88	2.51	2.20

Source: *Population and Housing Census 1979, 1989, 1999 and 2009 and GSO (2010)*

The aging index is the ratio of the population aged 60 years and older compared to the person under 15 years of age according to percentage (GSO, 2010).

The second characteristic of the aging process in Vietnam is to "aging in the oldest group", i.e. the growth rate and the number of elderly people in the highest age group (80 years and older) will increasingly large (**Table 2.4.**).

Table 2.4. *The Vietnamese population: Rapid growth of "oldest old"*

Age group (% total population)	1979	1989	1999	2009	2019	2029	2039	2049
60-64	2.28	2.40	2.31	2.26	4.29	5.28	5.80	7.04
65-69	1.90	1.90	2.20	1.81	2.78	4.56	5.21	6.14
70-74	1.34	1.40	1.58	1.65	1.67	3.36	4.30	4.89
75-79	0.90	0.80	1.09	1.40	1.16	1.91	3.28	3.87
80+	0.54	0.70	0.93	1.47	1.48	1.55	2.78	4.16
Total	6.96	7.20	8.11	8.69	11.78	16.66	21.37	26.10

Source: *Population and Housing Census 1979, 1989, 1999 and 2009; GSO (2010)*

Data from four Censuses of Population and Housing 1979-2009 periods shows the percentage of elderly people in the lowest age group (60 to 69) increased slowly, while the proportion of elderly people in older age groups medium (70-79) and oldest (80+) tends to increase faster. GSO forecast data (2010) for the period 2009-2049 shows that, when Vietnam entered the phase of population "aging" is at most elderly population grew at the highest rate (in **table 2.4.**).

Compared with other countries in the world, even with many developed countries or income per capita is higher; the rate of population aging Vietnam is quite high. Specifically, the number of years for the proportion of the population aged 65 and older in Vietnam increased from 7% to 14% of the total population (or population time to transition from the stage of 'ageing' to 'aged') is shorter countries: it took 115 years in France; took 69 years in America, took 26 years in Japan and China, while in Vietnam, it projected to take only 20 years (**Figure 2.1.**). Provided that the socio-

economic development as at present, this is really a big challenge for Vietnam in adapting to a population 'aging' fast.

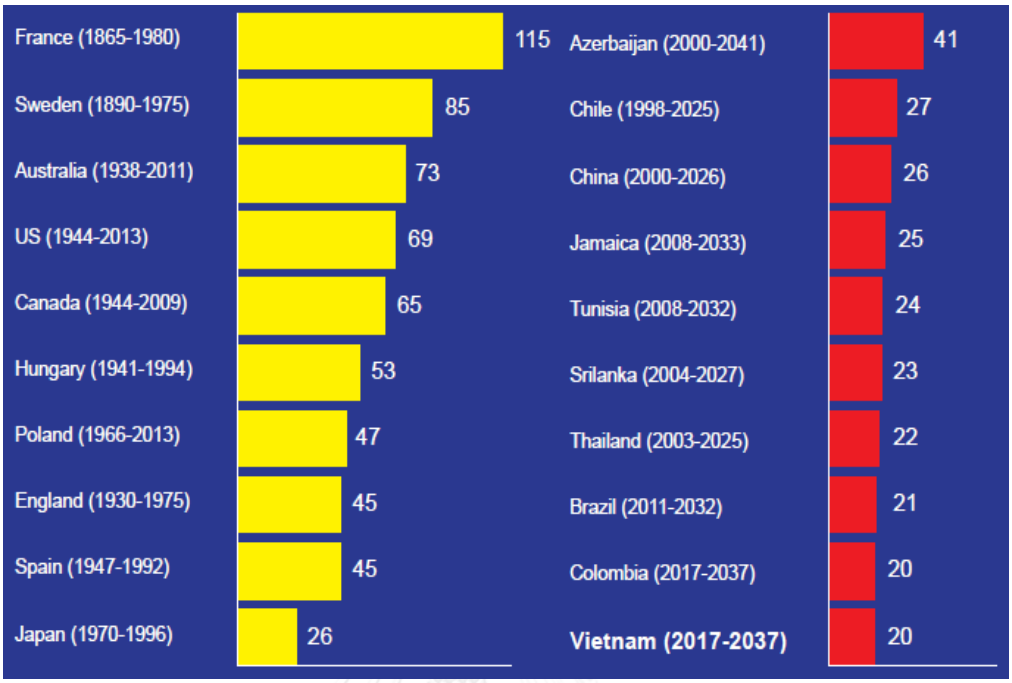

Figure 2.1. *Time needed to move from "aging" to "aged" in some countries*
Source: *Kinsella and Gist (1995); U.S. Census Bureau (2005); Viet Nam: GSO (2010)*

The third characteristic is the sex ratio in favor of females increasing with age (Table 2.5.). Because the proportion of women in the elderly population is increasing (also called trend "feminization" [26] of the elderly population) should require care policies elderly adapt this trend for women elderly are often more vulnerable to economic and social shocks. The sex ratio female / male increases with age in Vietnam as presented in Table 6 as well as the general trend in the world. These causes can explain this trend as older men often have higher mortality rates than women in the same age group older.

Table 2.5. *Sex ratio between elderly females and elderly males, 2009*

Age group	**60-69**	**70-79**	**80+**
Number of elderly females to 100 elderly males	131	149	200

Source: *Population and Housing Census 2009*

Living arrangements, cultural and spiritual life *[1, 25, 26, 36-38]*

Family life, culture and spirit that has implications for the welfare of the elderly as it is shown in marital status; so live together or not live together with children and grandchildren; other living conditions; culture and spirit. Among the factors that could make the lives of the elderly, the marital status is the most important

factor because the wife / husband of the elderly can be a source of support and shared mainly physical, mental and such care when sick or vulnerable. In other words, for elderly people living with wife / husband will have a positive impact (Knodel and Chayovan, 2008). The data shows that most elderly Vietnam living with wife / husband, followed by widowed spouses, and marital status (e.g. divorced, separated, and single) are percentage small (**Table 2.6.**).

Table 2.6. *Marital status of the elderly in Vietnam, 1993-2008*

Year	1992/93	1997/98	2002	2004	2006	2008
Married	64.04	61.63	61.69	60.51	60.85	59.10
Widowed	33.91	35.81	36.44	36.99	36.87	38.65
Other	2.05	2.56	1.87	2.50	2.28	2.25

Source: *Vietnam Household Living Standards Survey (VHLSS) 1992/93-2008*

A question is also important to discuss the living arrangements of the elderly as the elderly live with. Data from the survey of households living at the period 1993-2008 indicate changing trends, such as: (i) the percentage of old person living with their children is still high but tends to decrease (from 80% in 1992/93 to 62% in 2008); (ii) the proportion of elderly people living alone and the percentage of households with only elderly couple have increased; (iii) the proportion of households "skip-generation"[1] though not high, but also more than doubled (**Table 2.7.**).

Table 2.7. *Living arrangements of the elderly in Viet Nam, 1992/93-2008*

Year	1992/93	1997/98	2002	2004	2006	2008
With children	79.73	74.48	74.27	70.65	63.74	62.61
Living alone	3.47	4.93	5.29	5.62	5.91	6.14
Only elderly couple	9.48	12.73	12.48	14.41	20.88	21.47
With grandchildren	0.68	0.74	0.82	1.09	1.16	1.41
Other	6.64	7.12	7.14	8.23	8.31	8.37
Total	100	100	100	100	100	100

Source: *Vietnam Household Living Standards Survey (VHLSS) 1992/93-2008*

It is worth noting that, in recent years, the ratio of the elderly living with their children is the position-dependent people of all ages tend to decrease rapidly. It may be caused by the economic status of the old person has improved, but also may be because of the model family in Vietnam is changing the trend in which children increasingly independent from parents. The proportion of elderly people living alone increased from 3.47% in 1992-1993, to 6.14% in 2008. Giang Thanh Long (2009) showed that the majority of elderly people living alone is in rural areas (about 80%) and women (also 80%). Percentage of households with only elderly couple has more than doubled in the past decade, from 9.48% in 1992-1993, up to 21.47% in 2008. In

terms of weak social security, the vulnerability to economic and society shocks still high, living situation sorted so will be a big challenge in ensuring life for the elderly.

The proportion of elderly people living in the household "skip-generation" is not high, but the upward trend is also apparent, from 0.68% in 1992-1993, up to 1.14% in 2008 Data Analysis living Standards Survey 1993-2008 period shows that most households of this type living in rural areas. This may be a consequence of the migration of rural - urban population of working age. Although remittances are an important factor in reducing the proportion of poor people, but the risks of households remains high when this type is the main source of income and migration can not find a job with steady income in the context of slow economic growth or negative impact from outside as is happening in recent years.

In terms of education and training, Giang and Pfau research (2007) shows the percentage of elderly literacy increased over time, particularly the elderly proportion of the level of education of high school or and vocational training to increase. However, along with the results of this study, the UNFPA report (2010) shows the percentage of elderly people with high qualifications (tertiary or higher) is still low. Among those who have never been to school, elderly women, elderly people or those living in rural areas with low socio-economic status than other regions always have a higher proportion of elderly people is male, elderly people living in urban areas or areas with socio-economic conditions better. This situation is also a factor in explaining the differences in gender and regional areas of the elderly in awareness and access to services in education, health care and opportunities economy.

In terms of material, the life of the elderly be improved while the proportion of elderly households (those households with at least one elderly person) has a permanent and semi-permanent, can use of clean water, power lighting ... increased over time. However, a significant proportion of older people living in rural and regional conditions and socio-economic development of the region are lower than the other, still low living conditions, particularly exposure to clean water and adequate sanitation standard (Giang and Pfau, 2007).

In terms of morale, research reports of the Vietnam National Commission of Ageing Vietnam (VNCA, 2007) shows the percentage of participation in the club of elderly people is low (about 16%) that largely due to health. The proportion of elderly

people access to the mass media and well aware of the problems of socio-economic rather high (70%), but there is a big difference by age group (younger group have the ability to access and analyze problems better), by area (group living in urban areas show the superiority versus rural), ethnicity (Kinh people aware of social issues than other minority groups) and by level of education (who have a higher level know how to approach the situation better than the lower level).

Health and Healthcare *[20, 25, 26, 30-32]*

Health is the most important criteria when analyzing the situation of the welfare of the elderly. The fact that aging is not only related to the risk of death increasing by the biological changes that are related to functional limitations or risk for chronic illness is increasing. Health directly affects the daily lives of the elderly. Analysis of Sidell (1995) (as quoted by Sim, 2001) show that sickness will lead to loss of autonomy and independence in life, reduces dynamic, lose respect and confidence. In other words, for the elderly, mental trauma caused by poor health is more serious material loss. Because of this reason that the analysis of health status and health care of the elderly population tell us about the quality of life of the elderly, the demand for health care and related services for health care system in general and healthcare in their families and communities.

In recent times, due to material life and spiritual improved with certain improvements of the health care system, health of the elderly Vietnam generally improved, including a high proportion of age health status pretty / good increases, while the elderly have poor health status declined (as quoted by Dam Huu Dac et al., 2010). However, there are some challenging issues about the health of the elderly Vietnam.

Table 2.8. *Health status of the elderly, by age*

Age group	60-69	70-79	80+	All
Health status (%)				
Good	8.37	3.34	2.23	5.32
Normal	64.82	52.86	29.46	52.71
Ill	26.82	43.80	68.30	41.97
Illness status (%)				
No disease	12.43	8.85	3.42	9.17
Having 01 disease	72.32	75.08	82.44	75.57
Having 02 diseases	14.15	15.10	12.80	14.14

Having 03 diseases	1.02	0.97	1.34	1.08
Having 04 diseases	0.08	0.00	0.00	0.03

Source: *VNCA (2007)*

First, the distribution by age, the study of VNCA (2007) (**Table 2.8.**) showed that the health status of the elderly depend very much on age, in that age increases, the percentage of elderly people in frail health higher, the greater the number of patients suffering from the disease and the longer length of stay.

Second, the biggest challenge for the health care of elderly people is now the model and causes disease of the elderly are changing rapidly making burden "dual disease" increasingly clear. On the one hand, older people are suffering from many diseases caused by aging; on the other hand, older people also suffer from diseases caused by lifestyle changes as a result of changes in the socio-economic growth and economic development. For example, studies of Dam Huu Dac et al (2010) showed that 95% of elderly patients and mainly non-infectious chronic diseases such as osteoarthritis (40.62%); Cardiovascular and blood pressure (45.6%); prostate (63.8%); and urinary disorders (35.7%). At the same time, the disease arises due to lifestyle changes such as dementia and depression tends to increase and the proportion of elderly people suffering from this disease increases with increasing age (as quoted by Pham Thang và Do Thi Khanh Hy, 2009) (**Table 2.9.**).

Disease patterns of elderly people moving from infectious diseases to chronic diseases, non-communicable diseases are a major challenge for Vietnam and other non-communicable diseases often have prolonged latent period for the disease state money such as overweight, obesity... Because elderly patients do not visit often and have many bad habits make a serious impact on health (especially with older men, such as smoking, drinking ...) so for the elderly in Vietnam, non- communicable diseases became more severe and the treatment and cure a very costly disease usually detected in late stages.

Table 2.9. *Percentage of common mental problems*

		Age group	
		60-74	**>=75**
Stress	n	24/617	12/123
	%	3.90%	9.80%

Mental depression	n	7/846	7/309
	%	0.80%	2.30%

Note: *All estimates are statistically significant at 5-percent significance level.* ***Source:*** *Pham and Do (2009)*

Third, the consequences of changing patterns of disease is non-infectious diseases are rapidly becoming the leading cause of morbidity and disability in the elderly and this trend will continue in the next decades (as quoted by Pham Thang và Do Thi Khanh Hy, 2009). The risk of the elderly with disabilities in Vietnam is very high, which is common defects of vision and hearing loss. This condition can cause embarrassment to the elderly, low self-esteem and reduced social interaction. By age, the results from the Census of Population and Housing 2009 showed the proportion of elderly disability increases with age higher (**Table 2.10.**).

Table 2.10. *Percentage of disability for the elderly*

Type of Disability	Not Difficult	Difficult	Very Difficult	Impossible
Vision (% by age)				
60-69	80.50	17.90	1.30	0.30
70-79	65.20	30.50	3.70	0.70
80+	45.30	41.60	10.90	2.30
Hearing (% by age)				
60-69	89.60	9.10	1.10	0.20
70-79	74.40	21.80	3.40	0.50
80+	49.60	37.10	11.50	1.80
Walking (% by age)				
60-69	87.30	10.50	1.70	0.50
70-79	71.00	23.40	4.40	1.30
80+	45.50	37.70	12.40	4.30
Memory (% by age)				
60-69	89.00	9.70	1.10	0.30
70-79	74.70	21.50	3.10	0.70
80+	51.20	35.40	10.80	2.50

Source: *Population and Housing Census 2009*

2.4. Concept of the Quality of life

2.4.1. Definition of the Quality of life

Quality of life is a concept widely used in the social sciences related to the different aspects of life. This term is measured through individual self-assessment and economic conditions as well as the general expectation of life such as education, housing, social support and health, so this is only a concept subjective [39, 40].

Many authors have studied the quality of life described as a concept is subjective and multidimensional [41, 42]. However, there is no uniform definition of

quality of life. The understanding of this concept comparative between different cultures is known only to the extent described is still in its infancy. The only way to overcome this problem is to understand the concept of quality of life of the local people that they are meaningful, in their own way and are drawn from the life of them[43, 44]. From the individual perspective, the concept is defined will depend on the use of terminology, understanding of terminology to learn, as well as their position in the social issues and political organizations [45-47].

The concept of quality of life is becoming more and more popular, but it is not something new. At the time of BCE, Aristotle defines "quality of life" is a "good life" or "work flow" [42]. From that moment, it was found that quality of life is understood in different ways depending on the individual. Although the concept of quality of life was used more, but so far there is no globally agreed definition for this concept [39, 43, 44, 48-50].

According to Hass [51], “Quality of life is comprised of subjective indicators such as well-being and satisfaction with life and objective indicators such as functional status”. Janse (2004) defined quality of life is “multidimensional in construct including physical, emotional, mental, social, and behavioral components”.

According to WHO, “Quality of life is defined as individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns” [52]. It is a broad-ranging theory incorporates in a complex way the person’s physical health, level of independence, personal beliefs, psychological state, social relationships, and their relationship to significant characteristics of the environment.

In general, "quality of life" is defined as "a strong interaction between the external factors with the subjective perception of an individual's life on such factors"[41].

The term "quality of life" is truly a multidimensional term [44, 53, 54]. Therefore, the analysis of factors measure the quality of life many branches and research fields with different criteria.

2.4.2. Factors affecting the quality of life

According to World Health Organization, quality of life was measured six basic elements: physical health; mental health, through communication with society; religious beliefs; economic conditions and living environment [55].

According to the research unit of the quality of life of the Toronto University of, Canada [40], the factors affecting the quality of life is divided into 3 main scopes. The first scope is the intrinsic factor itself; the second is the scope of the relationship with external factors; the third is scope to achieve personal goals as well as hope; desires and aspirations.

Among the factors affecting the quality of life, health is the most important factors, including physical health and mental health [45-47, 53-57]. People cannot get a quality life if they often lived in illness, disease or disability. This is a necessary condition to obtain a good quality of life. Followed by economic factors, living environment, social interaction; religious beliefs, etc... Many studies have shown a close relationship between health and quality of life [41, 42, 58-65]. A study in Bangladesh showed that the sick have a negative impact on the quality of life of disabled people, affected in many different aspects such as psychological, social and economic [42].

According to WHO, general health (including physical health and psychological health) and the operation of the functional parts of the body is considered the most important aspects of quality of life, especially for the elderly [55, 66]. However, health is not the only aspect of quality of life.

According to Farquhar [46], when referring to the quality of life of an individual we "are not simply talking about the good things in their lives, but also need to talk about those things in life are not favorable", to describe the core problem of the nature of human life, and the ability to maintain or even improve the ability of their quality of life.

2.4.3. Measures of the quality of life of the elderly

Nowadays, there are many instruments to evaluate the quality of life of elderly such as: SAGE, SF 36-v2, CASP-19, OPQOL, WHOQOL instruments (WHOQOL-100, WHOQOL-BREF, WHOQOL-SRPB and WHOQOL-OLD). In this study, the

researcher uses the WHOQOL instruments as a tool to assessment the quality of life of elder people, because of below reasons:

- ✓ **"The WHOQOL instruments were developed cross-culturally"**: The WHOQOL-100 has been developed separately in 15 field centers in the world. The important aspect of quality of life and quality requirements of life has been drafted on the basis of claims of patients with a variety of diseases status, by good elderly and health experts in a variety of culture. The tool is thoroughly tested to evaluate the reliability and value of each field center and is currently being tested to evaluate the response to change. The WHOQOL tools can be used in particular cultures, but the results can simultaneously compare cultures. The WHOQOL is available in over 20 different languages and its development in more languages is progressing [66-68].
- ✓ **"The WHOQOL instruments place primary importance on the perception of the individual"**: Most medical evaluation obtained by testing by medical staff and laboratory. The WHOQOL tools, by focusing on the perspective of their own personal well-being, provide a new viewpoint on the disease. For example, diabetes is related to poor body regulation of blood sugar levels are well understood, but the effects of the disease on individuals perception that the social relationships of their working capacity and the financial situation has received little attention system. The WHOQOL tools are the instruments that will allow this type of study is done. They not only learn about the activities of people with diabetes, on a wide range of areas, but also how patient satisfaction with their functions and have therapeutic effects [67, 68].
- ✓ **"The Instruments have different forms for different uses"**: The WHOQOL central engine can evaluate the quality of life in a series of situations and populations. Moreover, the module is being developed to allow a extra detailed assessment of special populations (e.g., the elderly, refugees and people with convinced diseases, such as cancer, HIV / AIDS) [67, 68].

WHOQOL – SRPB *[69-71]*

Working on the WHOQOL-SRPB related to a multi-cultural research to develop a method that can evaluate the level of spirituality, religion and personal beliefs (SRPB) related quality of life in health and health care. A spiritual domain was involved in the initial quality of life concepts for the WHOQOL tools recommended to take it by a focus group of the faithful following, and summoned in 18 countries worldwide. Then the pilot testing verified that the theory of spirituality, religion and personal beliefs as a different extension, and is very vital for health-related quality of life in the world's health.

The WHOQOL-SRPB is a standard summary that extends the native build tools WHOQOL-100 and WHOQOL-BREF where the original spirit has been minimal representation. The field trials and successive research with WHOQOL-100 confirm that the spiritual realm is not enough for the theoretical and experimental reasons. Thus, in the mid-1990s, the Mental Health Board of the World Health Organization began a new project built in spirituality; with the purpose of creation a complete concept will be very useful for work in different cultures, and for the group with spiritual belief, religion and different individuals. At the WHOQOL project, this has taken the form of a module includes SRPB questions related to quality of life and health, is recognized as the WHOQOL-SRPB. In a paper recently published by WHOQOL-SRPB Group, quantitative survey data were originally presented.

In recent times, the new instrument was used in evaluation quality of life was published by WHO. It is WHOQOL-SRPB (World Health Organization Quality of Life - Spirituality, Religion and Personal Beliefs). WHOQOL-SRPB includes 132 questions, of which 100 questions are taken from the WHOQOL-100, the remaining 32 questions were developed later. The SRPB tool was developed by an extensive pilot test with 105 questions, happen in 18 centers all around the world. The results of this test are 32 questions selected to represent finalized version of WHOQOL-SRPB.

WHOQOL – 100 *[72]*

The WHOQOL-100 has been developed from an extensive pilot testing of 300 questions in 15 centers worldwide. Data from this pilot experiment on more than 4,500 subjects activated 100 best questions will be selected according to established criteria. Perfection has been through the process of creating, focus groups, pilot

testing, and field test. The final 100 items grouped into test one aspect of the generally quality of life and universal health awareness, and quality 24 aspects of life that were originally grouped into six major areas: physical, spirituality and psychological, environment, social relationships, and level of independence. After that, the field of spiritual independence and be placed in the areas of physical and psychological. Most participants completed the survey itself, although a small number of literacy troubles were given the investigation as a prepared interview. These questions are evaluated based on a 5-point Likert scale with anchor points are indicated.

These are questions that meet the definition of quality of life is the individual's opinion of their situation in life in the perspective of the value systems and culture in which they live and value-related goals, expectations period, concerns and standards themselves.

These questions represent the complete version of the WHOQOL-100 is used for testing. This is a generic version of English and never used as it stands, is not translated. Version suitable for use in different populations to participate in the pilot study is available from the test center. These versions are built by taking 100 questions and corresponding response scales exactly as they want in the language version used in the pilot test. (It should be noted that a number of variations exist even between the English language version)

WHOQOL – BREF *[73, 74]*

The WHOQOL-BREF questionnaire (WHOQOL Group, 1998) is a cross-cultural confirmation question was developed by the World Health Organization (WHO). The WHOQOL-BREF is questions assessing the quality of a person's health related to life in the last two weeks before completing the questionnaire. The questions in writing 26 entries representing four separate fields of QOL: environment (8 questions), physical health (7 questions), social relationships (3 questions), and the psychological well-being (6 questions). There are also two additional questions resolve qualities of life ("How do you evaluate the quality of your life?"), and general health ("How satisfied are you with your health?").

The WHOQOL-BREF exists in 19 different languages. Suitable language version, and permission to use it, can be found from The WHOQOL Group. In all cases, the WHOQOL-BREF should be used without discussion of the WHOQOL

Group. A method was developed for the new center to create a different language version of the WHOQOL-BREF more or WHOQOL-100.

The questions will appear in the order they appear in the WHOQOL-BREF samples provided in this document, the guidelines and do not change the title. Questions are grouped by response format. The evaluation of the equivalent of between WHOQOL-BREF questions and WHOQOL-100 was introduced in version WHOQOL-BREF example to allow easier comparison between responses to the items on the two versions. The WHOQOL-100 test fields allow the center to include items or aspects are important in assessing the quality of national life. In case the center would like to include additional national entries or module WHOQOL-BREF for, these should be put on a split sheet of paper and not sprinkled among 26 items available.

WHOQOL – OLD Module *[67-75]*

The assessment of health-related quality of life is essential role in the up-to-date evaluation of medical interventions. It is built up from the collaborative efforts of 22 different centers of culture in conjunction with WHO, two standard procedures of QOL available (the WHOQOL-100 and WHOQOL-BREF). Although commonly used, both devices were developed primarily for use in the young adult population. However, due to the special role of the medical condition of their permanent residence, older people may need to assess QOL even stronger than younger people do. A study called WHOQOL-OLD project, funded by the European Commission is developing a new version of the WHOQOL-100 is applicable in those over 60 years old.

The original purpose of the implementation of the WHOQOL-OLD module application is expanding and disseminating it in the native language of each country. Besides, the implementation will also help determine the attitude of aging and testing new instrument (WHOQOL-OLD) in a multi-cultural study of healthy aging innovation. The WHOQOL-OLD module will be tested with groups of elder people from a variety of cultures was also assessed on a range of socio-economic, psychosocial, and health-related to assessment of factors that contribute to healthy or unhealthy aging. So WHOQOL-OLD module deployment will allow examination of

the concept of successful aging is culture-specific features that generalize or popular culture.

After surveying stage and screen, WHOQOL-OLD questionnaires completed was published in 2006. Recently the short version of the WHOQOL-OLD has been developed and evaluated for reasonableness, 3 versions can be used. The full version of the WHOQOL-OLD questionnaire contains 24 questions with 6 different aspects of life that are related to the quality of life of older people, every aspect will have four questions related to level 5 the answer. These aspects include the sensory ability, autonomy, activity in the past, future and present, social participant, death and dying, and intimacy.

With respect to “sensory ability”, the question sensory evaluates function and the impact of the loss or decline in ability to sense (sight, smell, hearing, taste and touch) to quality of life. Aspect related to "autonomy" describes the ability to live independently, self-decision. Whereas, the "activities in the past, present and future" describes the satisfaction of what has been achieved in life as well as individuals look to the future. In the aspect of "social participant", it refers to the daily activities of life, especially those active in the community. For "death and dying", it is a sensitive aspect of life, the questions direct to the attention, anxiety and fear of death like. And finally, in the problem of "autonomy", it assesses personal relationships and intimacy in your life.

The strength of WHOQOL-OLD instrument is shown in the fact that it is one specialized tool targeting the elderly. This instrument goes deeper into the assessment of the specific psychological aspects of the elderly. Besides that, with the using of the WHOQOL-OLD module, the researcher can determine a preliminary model of health and quality of life of older people in a particular place and can be compared with the national other. The application of this module will also help researcher find the factors affecting the quality of life of older people through the different aspects of life in order to make appropriate policy development.

In this study, the researcher chose to use the WHOQOL-OLD instrument for a number of reasons as follows: Firstly, most of the studies of Vietnam on the quality of life of elderly people are now mostly using the assessment instrument is WHOQOL. With this instrument, quality of life scores of elderly people in separate tools can be

exchanged for the same quantity and they can be compared together. Second, this instrument is designed for the elderly subjects, while other instruments of WHOQOL only intended for adults only. Finally, WHOQOL-OLD can combine easily with other questions under question WHOQOL group to create more specialized questionnaires to assess quality of life of older people suffering from one or more diseases.

Chapter 3

Literature Review

Results from several studies have shown that the status of quality of life as well as the desire for quality of life seems to vary by generation. But in fact, this issue is still little attention to elderly subjects. Demographic studies have suggested that the broad definition of illness is culture-bound, that is it can only be explained in the context of certain specific cultural [76-79].

Quality of life, a concept entirely subjective, will be interpreted differently among the elderly in Asia countries and countries in the West [77]. The concept is understood in the cultural context is particularly important when considering the contents of specific interventions with the aim of improving the quality of life. These interventions will be less effective if it is not built on the basis of the understanding of concepts according to beneficiaries in their specific context [79-84].

The quality of life research on the world

For elderly people, quality of life is a rather abstract concept and includes many complex factors. How good physical health and fewer illnesses and diseases are the basic conditions for a quality life. This was followed by factors such as mental health, communication and social status, economic status, religion, living conditions, environment and other factors [65].

Especially for the elderly, support others, sharing other people and be useful to their families and society are important factors contributing to improving the quality of life of elderly people [44, 55]. A study of elderly people in Korea (Tae Wha Lee and Kyung Ja Lee, 2005) to see if the elderly are supporting children and their friends will have a positive impact on quality of life rather than when the elderly are receiving support. The supportive sharing can be divided into emotional support and material support. Emotional support is less dependent on factors such as income and resources of health. Material support means support related to financial and non-financial. Financial assistance including cash assistance and help generate income. Financial assistance is supporting the implementation of the household chores [41, 56, 57].

A study done in 2003 for the quality of life of the elderly in China after a stroke is built on four aspects of physical health, functional health, mental health and health society [85]. In addition, in 2011, also in China there has been intensive research development WHOQOL-OLD short-form version, to be used in assessing the quality of life of elderly people in this country [86]. The most recent is a study of the psychological assessment of older people is done by the WHOQOL-OLD instrument in 2013 [87].

In addition, an in-depth study on the quality of life of elderly people was also carried out in 2008 in Brazil with the WHOQOL-OLD instrument. Quality of life for the elderly was assessed by 424 seniors participated in a survey with 6 fully elements implemented in a city in the South of Brazil. Through this research, the quality of life of elderly people in this city is improved in many ways, but in that psychological factors are more important factors [88].

With the increasing average life expectancy across the globe, it is authoritative to build knowledge about older people point of view 'of their own aging, consider the case relating to their health, affect quality of life for participants and policy makers. In Canada in 2013 [40], a study of elderly is well done. The research wanted to determine the attitudes of older people to their aging process will partially mediate the effects of the satisfaction they ranked health as their quality of life. Furthermore, will the attitude of reconciliation relationship between quality of life and health satisfaction in the same way as we explain to the origin country of the elders, and the age and sex of them? All three aging attitude partly arbitrated the relationship between satisfaction and quality of physical health, environmental psychological, global life and social. The intermediate part had shown in the same way across all 20 countries samples, nevertheless of gender or age. Attitudes headed for physical change are a strong mediator of satisfaction when global health quality, specific areas of life, followed by the loss of psychosocial and psychological development society. This study is a cross-cultural study with a larger sample first to show that quality of life judgments, from 60 to 100 years old, is the product of elder women's and elder men's awareness of their health status, and attitudes en route for physical and psychological aspects of aging itself. A prospective study of the relationship between subjective perceptions of older people's health and attitude toward aging itself over

time using subjective measures of health is guaranteed. Learn about the linkages can help policy makers and practitioners consider strategies to improve the quality of life [89].

And most recently, another study conducted in Germany in 2014 with the WHOQOL-OLD instrument. The WHOQOL-OLD is a tool to assess the subjective quality of life in older adults. However, the properties of the WHOQOL-OLD psychology has been evaluated only on the small samples and do not have local representation in research. In this study, the properties of the WHOQOL-OLD psychology are evaluated based on a representative sample of elderly people in Germany. The survey was conducted using face to face interviews with 1133 samples from the German population aged 60 years and older was conducted. Quality of life was assessed by means of WHOQOL-BREF and WHOQOL-OLD and SF12. Furthermore, the Geriatric Depression (GDS), the Instrumental Activity of Daily Living (IADL) have been applied to assess depressive symptoms, cognitive capacity and ability to perform daily activities. Psychological nature of the WHOQOL-OLD was assessed by means of traditional test theory and probabilistic analysis confirmed factors and multivariate regression models. IRT analysis indicated that all questions of the WHOQOL-OLD contribute significantly to the measurement of the relevant aspects. While structural 6 aspects of WHOQOL-OLD were supported by the results of the factor analysis confirmed a common underlying factor for the total scale of WHOQOL-OLD cannot be determined. The correlation with other quality of life measures and multivariate regression models with GDS and IADL indicate only good value standards of all aspects of WHOQOL-OLD [90].

Besides the WHOQOL-OLD questions were developed for 22 centers in 15 countries, these countries have carried out studies to assess the reliability and validity of the questionnaire. These studies have observed that the question is relevant and reliable measure for the application of the quality of life of older people through Cronbach's Alpha coefficient values are over 0.7 [79-81, 86-88, 90]. Besides, to verify validity of the questionnaire was carried out with Pearson’s correlation coefficient, t-test validity[75, 79, 86, 87, 90] or Rash analysis (Chachamovich E. et al., 2008) [88] .

The quality of life research in Vietnam

In Vietnam, in the last decade, the country remains poor, people focused on making enough money to pay for daily living. Therefore, people accept all the hard work though, despite the exploitation of the company, factory. Today, paralleling with the economic and social development, the country out of poverty, people also pay more attention to the quality of their lives. Therefore, the number of studies on quality of life is very rare in Vietnam. The quality of life of elderly people is a relatively new problem and it is very rarely mentioned studies. Therefore, the concept of quality of life and not be understood and evaluated in a comprehensive way.

Today, the concept of quality of life of the people is gradually modified in the development of life. Vietnam is a country in transition and the economy is in a phase interferometer cultures, different perceptions to the Vietnamese people's perceptions about the quality of life very diverse. Over time, perceptions of the quality of human life have been transformed from stage to another stage and develop in many different forms. Previously, for most people worry about eating every meal, the pressure to survive and earn living difficult lives, the quality of life is seen mainly on the physical aspect, "Full rice, warm clothes" was happy nowadays mental factors are becoming especially important. With Western countries, while physical needs are becoming saturated, then a best quality of life to have factors such as health, employment, environment, culture, information, entertainment, etc... [43, 48].

Vietnam is a country in transition economies and in the period of interference with the culture, so different perception of human conception Vietnam on quality of life is extremely rich and forms: young or old age, male or female, urban or rural ... With each person, living in a certain situation has views on various quality of life. According to the concept of youth, quality of life is jobs, freedom and fun entertainment. But many older people quality of life concept means no disease, sickness, as the children cared for, is to communicate with the community, etc... In a study of elderly people in rural areas, the results show that most elderly people interviewed said that their lives are happy lives if they have enough food, health, spiritual comfort and for them, spirit is more important than others [91].

Although the concept of quality of human life can be very diverse and different, but boiled down to 3 factors: health, physical life and spiritual life are

indispensable. Therefore, if you want to assess the quality of life, they need to be fully comprehensive review on all aspects of life such as health status, illness, psychological, financial ability, cultural beliefs, environment and relationships with family and society, etc...

Quality of life is becoming an important issue in life, if such a heart to understand the factors affecting the quality of life of the elderly may help to identify those at risk for low quality of life, which may have supported interventions in time [39, 41, 44]. The process of learning about the research on quality of life of elderly people in Vietnam are mainly implemented by the agencies and organizations in Vietnam made in the past 30 years shows that there is virtually little research has been carried out with the purpose of understanding the quality of life of elderly people in detail and thoroughly, especially not one specialized instrument to perform this assessment.

In education level of elderly, the illiteracy rate of people aged 60 years and above has improved over the years, but it still exist a gender difference in educational attainment elderly. When it is specified in a national survey in 2006, the rate of illiteracy among women and older is higher, with 31% of women and 7.6% of men. The data also showed that 23.4% of elderly illiterate. These variances may differ by geographic region, and the elderly living in the remote mountainous areas or higher are more likely to be illiterate or less educated. By marital status, married elderly people living alone, or widowed, often have lower levels of education than those who were married or single. The remaining obstacles also hinder the elderly in this area to access social services [92].

According to research by Hoang Van Minh, a study in Vietnam in 2007, education is a key factor that led to the positive object quality of life. For example, higher education combined with the quality of the higher subjective life due to better knowledge about health problems and it lead to better health conditions. The proportion of respondents had completed primary school and over in HDSS Vietnam (40.6%) is radically higher compared with Indonesia HDSS (15.7%) [93].

Regarding the health status of elderly people, 95% of the elderly had health problems. On average, elderly patients were 2.69 / person (Ministry of Labor, Invalids and Social, 2006). Data from Families Nationwide survey in 2006 showed that 51.3%

of elderly people report themselves as having a poor health status. Older adults rated their health good is higher than women, 10% and 5%, respectively. Most elder people live in urban areas have a higher health status than their counterparts in rural areas.

In terms of financial status, in a study by Ngo Thi Tien Dung (2013), it pointed out the contribution of the elderly in the family economy in Vietnam. In general, older people have constantly contributed to the family economy of the working-age both of them and after retirement age. The contribution of the elderly to family life and society has been widely recognized. The elderly, who previously worked in the formal sector, can rely on pensions and savings for old age support. However, the proportion of the elderly have a stable source of income, such as savings and pensions, or other sources of social support is relatively low, 35% in urban and 21.9% in rural areas rural. The percentage of their income in total household income is small. GSO survey data of 2009 showed that the average percentage of elderly income is lower than the average income / People of Vietnam, which is approximately 59% (UNFPA, 2011) [11, 16, 20, 92, 93].

The role of the family in the care and support for older people: As traditional family plays a very vital role as stable accommodation, warm atmosphere for the old person. Some research suggests that family still plays the primary responsibility to support and care for the elderly. The counterpart material and spiritual relationships between adults and their aging parents is maintained. Adult people (18-60 years old), were living together or apart, still serves as the main basis of support parents in old age. Other forms of support (from community, relatives or other...) are smaller [4, 10, 11, 24, 92].

Today, it is not easy to see the family in which there are three or four generations living together in one house. This can lead to the role of family support elderly people seem to be reduced. However, it is very important to maintain a sense of family support for the elderly due to the fact that mental health care for elderly people to contribute to improving the quality of life. The elderly may fall into depression or feeling lonely if they lack family visits or attention from family members [26, 36, 94].

In the same research Ngo Thi Tien Dung (2013), at age 60 or older, there is still a high percentage of old people involved economic activity. The data indicate that

the proportion of elderly people, this will be increased, from 25% in 1999 to 35.2% (30.3% to 41.7% of women and men) in 2009 male ratio people engaged in economic activities, but the proportion of older women participating in public works is 5 times higher than that of men. Economic participation the elderly are reduced through the ages. Most elderly people are still working aggressively at the age of 60-69 (61.9%), aged 70-79 - 34.5%, and 80 and over - 7.8%. Most elderly people engaged in forestry, agriculture and aquaculture (60%) and the self-employed or family services (29.9%), and only a small proportion - 9, 3% earn wages or salaries. It should be noted that 18.6% of people aged over 65, who worked as migrants [16, 92-95]. By situation, the proportion of elderly people, who are working in urban areas, including 25.96%, and in rural areas - 49.09%. Most active elderly people living in rural areas (87.1%) [95].

Besides engaging in economic activities to earn money for their own salaries, the elderly also have a better influence to improving household income and happiness. By performing tasks, different tasks, they confirmed their role and responsibilities in the family expanded, enhanced emotional connection with children ... As a tradition, older men regular economic contribution, support adult children in economic activities of households, children and professional education and training, whereas older women often spend more time and take responsibility for implementing more care and household tasks. There are still many factors related to household chores and taking care of the family, including sexual availability, social norms and values. For example, women are considered "interior minister" and the influence of "traditional virtues" focuses on women and family care, and greater responsibility for family care (children, the elderly, sick) and happiness, etc…[36-38, 92].

Up to the present time, in Vietnam, the instruments for qualitative research are used primarily as WHOQOL-100 and WHOQOL-BREF. However, two instruments are in fact just one single instrument; WHOQOL-BREF is only compact form of the WHOQOL-100. These instruments are designed and used with objects mainly young adults, are not appropriate to use it to assess the quality of life of elderly people. Therefore, in this study, the WHOQOL-OLD is used as an instrument to help set the basic background for the establishment of a specialized instrument for the elderly, thereby the foundation for the studies on the elderly in Vietnam.

Chapter 4

Methodology

4.1. Conceptual Framework

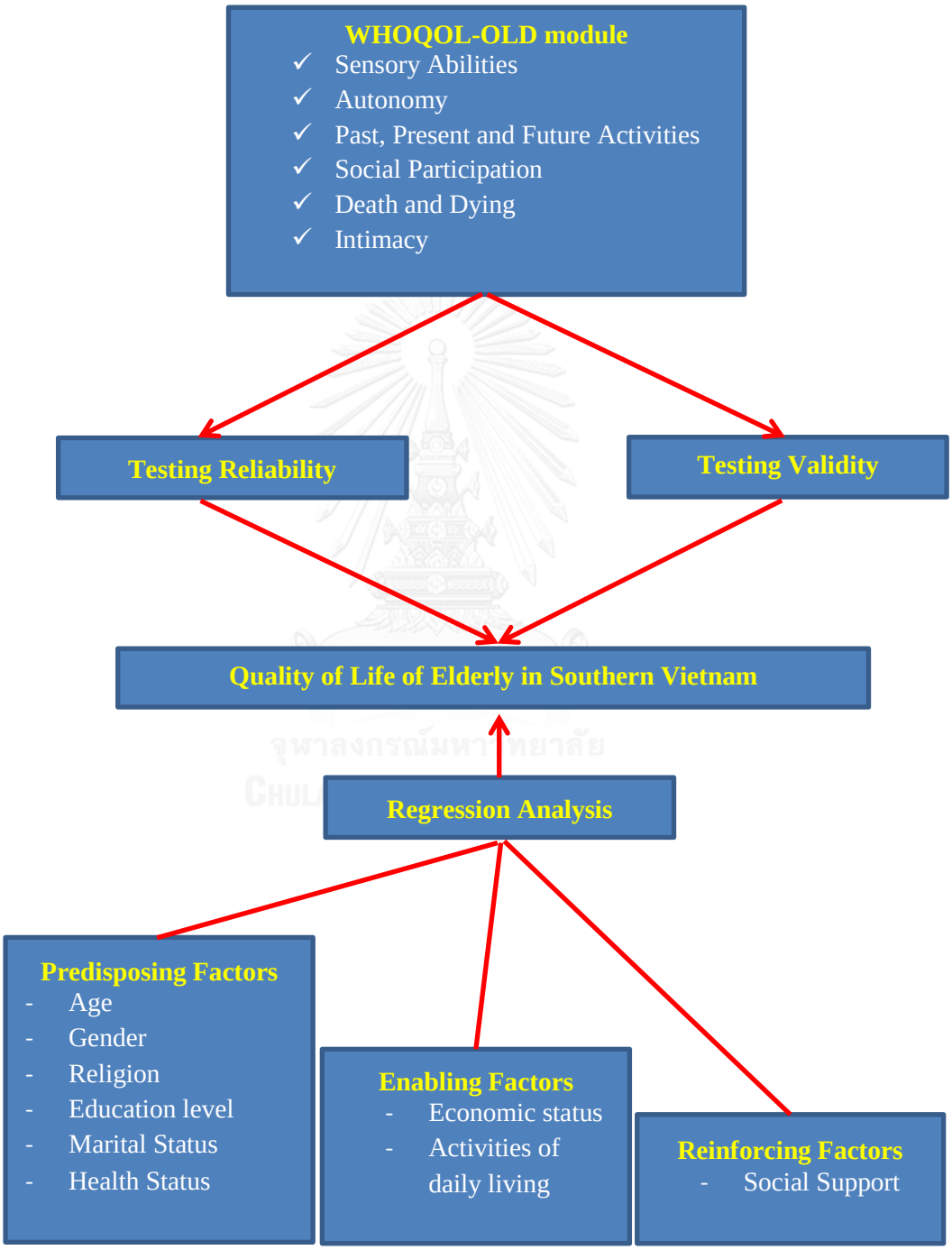

Figure 4.1. *Conceptual framework*

The above figure shows the conceptual framework. The conceptual framwork can be broken down into two parts. The upper part of the figure involves testing reliability and validity of the WHOQOL-OLD instrument before it is put into use in the context of Vietnam. Assuming that the instrument is valid and reliable, the instrument will be used and information on different dimensions of quality of life will collected in accordance with the instrument. The lower part of the conceptual framwork involves the identification of factors affecting the level of quality of life of elderly people. These factors are divided into 3 groups: predisposing factors, enabling factors and reinforcing factors, detailed further in **table 4.1**.

Table 4.1. *Predisposing, Enabling, and Reinforcing factors of health behavior*

Factors affecting behavior	Examples
Predisposing Factors	Knowledge, attitudes, cultural beliefs, subjective norms, and readiness to change
Enabling Factors	Available resources, supportive policies, assistance, and services
Reinforcing Factors	Social support, praise, reassurance, and symptom relief

Source: *Di Clemente, Ralph J., 2013[96]*

4.2. Study Design and Target Population

This is a cross-sectional study that investigates the pattern of quality of life of elderly living in the Southern of Vietnam, specifically in Ho Chi Minh City, Southern of Vietnam. The subjects are people who are 60 years old and above, living in this area.

4.3. Sample Size

The minimum sample size can be calculated based on the following formula [97] (which assumes simple random sampling):

$$n = \frac{z^2.N.p.(1-p)}{d^2.N + z^2.p.(1-p)}$$

- N: Total population of elderly person in the survey.
- p: The proportion of older person have a good quality
- d: The rate of allowable error
- z: The standard normal deviation at 95% CI (confidence interval)

Using the above formula, the sample size should be equal to:

$$n = \frac{N}{N.d^2 + 1} = \frac{469{,}353}{469{,}353.(0.05)^2 + 1} = 399.66$$

Where:

N = 469,353 (total population of elderly in Ho Chi Minh City in 2013, Vietnam) [98] and

d = 5% (allowable error). It should be re-emphasized here that the sample size here is based on the simple random sampling assumption. As will be explained in the next suc-section, the assumption does not hold in this study (two-stage cluster sampling is used) and therefore the sample collected may not necessarily be representative.

4.4. Sampling Method

A 2-stage sampling method is used:

The first stage is cluster sampling, where 2 districts (1 urban district and 1 rural district) are randomly chosen.

The second stage is convenience sampling, where data are collected based on a face-to-face interview, within each district; the subjects are recruited on a voluntary basis. The total number of observations in the sample is 442.

Inclusion criteria

- Being of the Vietnamese nationality
- Aged over 60 years old or above.
- Able to communicate in Vietnamese
- Living in the selected study areas for at least one year
- Willing to participate in this study.

Exclusion criteria

- Having mental health problems
- Unable to give interview due to their morbidity conditions (such as mental health problem, paralysis, comatose, etc.)
- Not willing to participate in this study.

4.5. Research Instrument

A structured questionnaire is used in this study and it includes 2 main parts. The first part contains predisposing, enabling and reinforcing factors that may affect

quality of life of the subjects. The second part refers to six main domains of quality of life as they are included in the WHOQOL-OLD module.

Part 1: Predisposing, enabling, and reinforcing factors

Questions on general characteristics of elderly people in the questionnaire include: age, gender, religion, education level, marital status, economic status, health status, sensory functioning, and activities of daily living.

Age is calculated from the birth year to 01/01/2015. In the Vietnamese culture, the elderly might not remember their birth year but they remember their Chinese zodiac year of birth such as: mouse year, buffalo year, tiger year or dragon year, etc. The Chinese zodiac calendar is used to calculate age in some cases.

Education is classified into 4 levels: **1**: Illiterate/ **2**: Elementary/Middle school/ **3**: High school/ **4**: Over high school.

Marital status includes 2 options: **1**: Currently Single (never married / widowed / divorced)/ **2**: Currently in a relationship (Living with partner / spouse)

Economic status refers to monthly income of the elderly (included all sources) in thousands of VNDs.

Health status refers to the extent to which the elderly perceive their health status in comparision with others of the same age. The responses are classified into 5 levels: **1**: Very bad/ **2**: Bad/ **3**: Moderate/ **4**: Good/ **5**: Very good.

Sensory functioning refers to the extent to which the elderly perceive their own sensory functioning (visioning, listening, walking and memory) based on 3 levels: **1**: Not difficult/ **2**: Difficult/ **3**: Very Difficult

Activities of daily living refers to extent to which the elderly are able to perform activities of daily living (bathing, dressing, toileting, transferring, continence, feeding) without help from others. For this function, the reseacher evaluates based on 2 level: **1:** Without help or little help from others/ **2:** With help from others.

Rural: The research occurred in 2 districts (1 Urban District – 1 Rural District) of Ho Chi Minh City, Southern of Vietnam. The elderly people take

part in the interview were divided based on their living area. (**0**: Rural District/ **1**: Urban District)

Part 2: Quality of life

The WHOQOL-OLD instrument is used to measure quality of life of the elderly in this study. It includes 24 questions on six QOL domains: Sensory Abilities; Autonomy; Past, Present and Future Activities; Social Participation; Death and Dying and Intimacy. Each domain has 4 questions.

With the WHOQOL-OLD, each question has 5 levels of satisfaction, from 1 (lowest) to 5 (highest). The total score of each domain ranks from 0 to 100 and will be calculated into an index according to the WHO's guidelines. The higher score the elderly report, the better QOL they have.

4.6. Reliability and Validity Test

Reliability

To test the reliability of the questionnaire, a pretest is conducted on 30 randomly selected elderly people, to find out if there are problems such as misunderstanding, unclear meaning, etc. Cronbach's Alpha coefficient is used to test the reliability of the research instrument and, for the instrument to be reliable, the coefficient needs to be as least 0.7.

Cronbach's Alpha Coefficient can be calculated as follows [99]:

$$\propto = \frac{n}{n-1} \cdot \left(1 - \frac{\sum V_i}{V_{test}}\right)$$

where:

n: number of questions

V_i: variance of scores on each question; $V_i = p_i*(1 - p_i)$

P_i: percentage of class who answers correctly (this formula can be derived from the standard definition of variance

V_{test}: total variance of overall scores (not %'s) on the entire test

Table 4.2. *Scale reliability of Cronbach's Alpha*

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Validity

Convergent validity: KMO and Bartlett's Test

The KMO and Bartlett's Test is used to test convergent validity, which is defined as a parameter usually used in psychology, sociology, and other behavioral sciences. It refers to the extent to relation of two measures of constructs in theoretically and in reality [100].

Besides that, this test also is used to test the hypothesis that the correlation of the variables in the overall observations. For the KMO and Barrlett's Test (1974) recommend a minimum KMO coefficient of 0.5 and values between 0.5 and 0.7 is trivial, between 0.7 and 0.8 value as well, between 0.8 and 0.9 values are very good and value 0.9 is great. If testing has statistical significance ($p \leq 0.05$), these variables are correlated with each other in general.

Construct validity: Pearson's correlation coefficient

Content validity refers to the degree of influence of one item to the overall aspect of a social construct. It can be estimated through correlation coefficient [101].

Pearson's correlation coefficient is symbolized by the letter *r* and is also known as the *sample Pearson correlation coefficient* or the *sample correlation coefficient* . The fomular for *r*, given one dataset $\{x_1,...x_n\}$ and the other dataset $\{y_1,...y_n\}$ also containing *n* values, is:

$$r = r_{xy} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2}\sqrt{\sum_{i=1}^{n}(y_i - \bar{y})^2}}$$

where:

n: the number of values

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \quad ; \quad \bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i$$

Discriminant Validity:

Confirmatory Factor Analysis (CFA) is used to test discriminant validity

Content Validity:

The construct validity, one of three types of validity in the classical model, which is defined as a parameter usually used in psychometrics, psychology, language studies, and other social sciences. It refers to the extent to which a test measures what it achieves, or implied, to be measured [102].

T-test and ANOVA is used to test construct validity, and the test statistic can be derived using the following formula and it is tested at the 5% level of significance:

$$t - test = \frac{difference\ between\ group\ means}{variability\ of\ groups}$$

$$t - test = \frac{\overline{X_T} - \overline{X_C}}{SE(\overline{X_T} - \overline{X_C})} = \frac{\overline{X_T} - \overline{X_C}}{\sqrt{\frac{var_T}{n_T} + \frac{var_C}{n_C}}}$$

4.7. Data Collection

Face to face interviews with elderly people living in Ho Chi Minh City were conducted by the researcher and 2 trained volunteers. Responses were double checked and cleaned everyday by researcher.

Data were collected in 2 districts (1 urban and 1 rural) in Ho Chi Minh City.

In Ho Chi Minh City, urban district was one that met all of the criteriabelow:

- ✓ Population density >10,000 pers./sq.km
- ✓ The proportion of non-agricultural employment reached ≥ 90% / Total number of employees
- ✓ The proportion of industry - construction and trade - services - tourism in the economic structure reaches ≥ 90%
- ✓ The system of urban infrastructure construction is complete and synchronization.

Districts that did not meet all of above requirements were rural districts.

4.8. Data Analysis

- ✓ Using input data by Excel
- ✓ Analysis tool: SPSS software, AMOS software

4.9. Evaluating the quality of life of elderly by WHOQOL-OLD

Scale structure

The WHOQOL-OLD module has 24 questions, which can be divided into 6 categories. Each category has 4 items and each item is ranked by a Likert scale (from 1 to 5), so that, the score for each category can range from 4 to 20. The score of each part is subsequently combined to provide the overall score for quality of life of the elderly.

Scoring

The WHO provides scoring guidelines that are detailed in **table 4.3.** To correctly come up with a score for the WHOQOL-OLD module involves the following steps:

1/ High scores represent high quality of life and low scores represent low quality of life.

2/ The questionnaire needs to be arranged into appropriate scales. For "positive" questions, higher values represent higher quality of life. For "negative" questions, however, the scoring system needs to be reversed; it will be recorded as 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1. According to **table 4.3**, the negative questions are identified with a "*" in the scoring list. The unidirectional values are added to generate the overall score (**table 4.3.**).

3/ Summing up the scores produces what is known as the the Raw Facet Score (RFS), which ranges from the lowest possible (number of questions * 1) and highest possible (number of questions * 5) value. Because each category has 4 questions, it means the range is between 4 and 20.

4/ The RFS is divided by the number of questions in the category. The resulting Standardized Facet Score (SFS) then ranges between 1 and 5.

5/ The next step is to convert the RFS into what is known as the Transformed Facet Score (TFS), which is scaled between 0 and 100, similar to an index. To obtain TRS, the formula: TFS = 6.25 * (RFS -4) is used. To get the total score for the WHOQOL-OLD instrument, the scores are combined.

Table 4.3. *Scoring list for the WHOQOL-OLD module*

Sensory Abilities (SAB)	Old_01*	Old_02*	Old_10*	Old_20
Autonomy (AUT)	Old_03	Old_04	Old_05	Old_11
Past, Present and Future Abilities (PPF)	Old_12	Old_13	Old_15	Old_19
Social Participation (SOP)	Old_14	Old_16	Old_17	Old_18
Death and Dying (DAD)	Old_06*	Old_07*	Old_08*	Old_09*
Intimacy (INT)	Old_21	Old_22	Old_23	Old_24

Note: * Reverse-scored questions

4.10. Regression Analysis and Expected Sign

In this research, the researcher uses the OLS model to determine factors affecting to quality of life of elderly people living in Southern Vietnam.

In this model regression, quality of life of elderly people was chosen as the dependent variable. Quality of life of elderly people (**Y**) depends on many factors, mainly in demographic characteristics which were divided into 3 factors: predisposing factors, enabling factors and reinforcing factors. If one characteristic changes, the quality of life of elderly people changes.

The regression equation is:

$$\mathbf{Y_i} = \beta_0 + \beta_1*\mathbf{X_{1i}} + \beta_2*\mathbf{X_{2i}} + \beta_3*\mathbf{X_{3i}} + \beta_4*\mathbf{X_{4i}} + \beta_5*\mathbf{X_{5i}} + \beta_6*\mathbf{X_{6i}} + \beta_7*\mathbf{X_{7i}} + \beta_8*\mathbf{X_{8i}} + \beta_9*\mathbf{X_{9i}} + \beta_{10}*\mathbf{X_{10i}} + \beta_{11}*\mathbf{X_{11i}} + \boldsymbol{\varepsilon_i}$$

In that:

$\mathbf{Y_i}$: Total Quality of life

$\mathbf{X_1}$: Age

$\mathbf{X_2}$: Gender

$\mathbf{X_3}$: Religion

$\mathbf{X_4}$: Education level

$\mathbf{X_5}$: Marital status

$\mathbf{X_6}$: Ln income

$\mathbf{X_7}$: Income enough

$\mathbf{X_8}$: Health status

$\mathbf{X_9}$: Diseases status

$\mathbf{X_{10}}$: Daily activities

$\mathbf{X_{11}}$: Rural

$\boldsymbol{\varepsilon_i}$: Error term

Age: This is an important factor in assessing the quality of life of the elderly. When age changes, humans also changes in thinking and feeling around. Thereby leading to the quality of their lives has changed.

Gender: Due to several factors physiological differences in male and female body, so the quality of life of the elderly may vary by gender.

Religion: When people have faith in life, faith in these healing miracles, people easy to feel comfortable with what they do trust them. Therefore, religion is also a factor that can affect the quality of life of the elderly.

Education level: When people have higher levels of education, the more they demand. If their demands are not met, their quality of life is also varying those needs.

Marital status: Those with mate next will feel comfortable and pleasant than those who live in loneliness. Therefore, this factor will also be considered in assessing the quality of life for the elderly.

Income per month/ Income Enough: Those with higher incomes, they will not have to think and worry much about the difficulties in the family. By contrast, low-income people are often faced with the expenses of everyday life. Therefore, income and income status will also be considered in assessing the quality of life of the elderly.

Health status: For the elderly, health problems are top priority issues. If people are in good health, they will be more optimistic since their quality of life higher than those in poor health.

Diseases status: Similarly with health conditions, if older people do not get sick, they will not have to worry about more than who has the disease. Therefore, Diseases status will also affect the quality of life for the elderly.

Sensory abilities (Visioning, Listening, Walking and Memory): The senses of the elderly is seen as an aspect related to the quality of life of the elderly. If there is a change, it may affect the attitudes and ways of thinking of the elderly in their own lives.

Daily activities (bathing, dressing, toilieting, transferring, continence, feeding): The daily activities are also a matter for concern. When elderly people are unable to control their own activities, it also makes them feel more pessimistic about their lives. Since it affects the quality of life of their own.

Rural: The elderly living in rural area often have more comfort when compared to elderly people living in urban area. The cause of this is due to agricultural land, vacant land in rural areas more than urban elderly people could be living in comfort, enjoy the fresh air of nature and less pressure on life than those living in urban area.

Table 4.4. *Summary the expected signs of demographic characteristics*

Variable	Description	Expected Signs
Age	Continuous	-
Gender	0: Male / 1: Female	-
Religion	**1**: Buddhist / **2**: Christian/ **3**: Protestant/ **4**: None at all/ **5**: Others	+
Education	**1**: Illiterate/ **2**: Elementary/Middle school/ **3**: High school/ **4**: Over high school	-
Marital status	**1**: Currently Single (never married/widowed/divorced) **2**: Currently in a relationship (Living with partner/spouse)	+
Ln Income	Continuous	+
Income enough	**0**: Yes / **1**: No	-
Health status	**1**: Very bad/ **2**: Bad/ **3**: Moderate/ **4**: Good/ **5**: Very good	+
Diseases status	**0**: Yes / **1**: No	+
Sensory Abilities	**1:** Not Difficult/ **2:** Difficult/ **3:** Very difficult	-
Daily Activities	**0:** No need Help/ **1:** Need Help	-
Living area	**1:** Rural district/ **0:** Urban district	-

Chapter 5

Results

In this chapter, the researcher will present the results obtained. These results are divided into 3 parts: reliability and validity, descriptive statistics and regression analysis.

With reliability and validity, Cronbach's Alpha coefficient and test-retest reliabilty measures were conduct for reliability and 4 measures - content validity, construct validity, convergent validity and discriminant validity - were applied for validity testing. The reliable and valid of the questionnaire was conducted on preliminary survey with 30 elderly people and confirm of them on 442 who 60 years and over. For descriptive statistics, the researcher epitomizes the quality of life index, demographic characteristics of samples and the relationship between QOL and demographic factors. With the end part, regression analysis, the researcher will show the relationship between QOL and demographic factors through multivariate regression equation.

PART 1: RELIABILITY AND VALIDITY

5.1. Preliminary Survey (N = 30)

Before using the questionnaire for the final analysis, a preliminary small-sample survey (N=30) was conducted, with the WHOQOL-OLD instrumented being translated into Vietnamese.

Thirty elderly people, aged 60 and over and conveniently sampled, were asked to fill out the questionnaire and any misunderstanding or typing errors or any other problems with the questionnaire were recorded.

5.1.1. Reliability

Cronbach's Alpha and intra-class correlations coefficients (ICC)

Cronbach's Alpha reliability coefficients and intra-class correlations (ICC) were calculated based on the preliminary survey to test the reliability of the questionnaire. For the questionnaire to be considered reliable, Cronbach's Alpha should be greater than 0.7 and ICCs should be high. **Table 5.1** and **5.2** show

Cronbach's Alpha coefficients and ICCs and show that they are relatively high, so the questionnaire should be deemed reliable.

Table 5.1. *Cronbach's Alpha coefficient of each domain in survey*

Domain	Cronbach's Alpha α
Sensory Ability (old01-04)	0.974
Death and Dying (old05-08)	0.900
Autonomy (old09-12)	0.872
Past, present, future activities (old13-16)	0.769
Social participation (old17-20)	0.928
Intimacy (old21-24)	0.957
Total Questionnaire (24 questions)	0.935

Table 5.2. *Analysis for test-retest reliability for questionnaire*

Domain	ICC value	95% confidence interval	p-value
Sensory Ability (old01-04)	0.902	0.838 – 0.947	< 0.001
Death and Dying (old05-08)	0.692	0.541 – 0.819	< 0.001
Autonomy (old09-12)	0.630	0.465 – 0.777	< 0.001
Past, present, future activities (old13-16)	0.455	0.270 – 0.646	< 0.001
Social participation (old17-20)	0.763	0.635 – 0.865	< 0.001
Intimacy (old21-24)	0.848	0.756 – 0.916	< 0.001
Total Questionnaire (24 questions)	0.376	0.265 – 0.531	< 0.001

5.1.2. Validity

Discriminant validity

The CFA analysis was used in discriminant validity test based on the preliminary survey. For the questionnaire to be considered discriminant validity, the χ^2**/df** smaller than 3.0 and other analysis get high as close to 1 as possible. **Table 5.3** shows the values of χ^2**/df** and other test get high, so the questionnaire should be deemed discriminant validity.

Table 5.3. *Goodness of fit results*

	χ^2	χ^2/df	RMSEA	NFI	CFI	GFI
6 domains	-	-	0.192	1.000	1.000	1.000

Construct validity

To test the correlation in terms of the construct validity of the questions in the questionnaire WHOQOL-OLD, the questionnaire was analyzed by using Pearson

correlation coefficient between the question and the hypothesis of partial or total of questionnaire. They get relative high as close to 1 as possible. The coefficients in **table 5.4** show that they are relative high, so the questionnaire should be deemed construct validity

Table 5.4. *Correlation coefficient between items and hypothesized or total score*

No.	Sensory ability	Death and dying	Autonomy	Past, present, future activities	Social participation	Intimacy	Total score
1	0.968	0.480	0.493	0.385	0.464	0.157	0.713
2	0.985	0.501	0.426	0.387	0.487	0.215	0.731
3	0.985	0.501	0.426	0.387	0.487	0.215	0.731
4	0.911	0.621	0.274	0.426	0.422	0.195	0.707
5	0.542	0.903	0.015	0.200	0.199	0.155	0.543
6	0.592	0.916	0.148	0.304	0.310	0.203	0.635
7	0.346	0.896	0.016	0.270	0.249	0.382	0.558
8	0.473	0.841	0.212	0.560	0.436	0.489	0.725
9	0.233	0.112	0.769	0.266	0.298	0.164	0.381
10	0.377	0.142	0.817	0.428	0.464	0.289	0.530
11	0.461	0.029	0.929	0.364	0.366	0.066	0.459
12	0.371	0.113	0.894	0.545	0.484	0.354	0.572
13	0.297	0.264	0.499	0.823	0.603	0.528	0.635
14	0.223	0.226	0.460	0.818	0.686	0.549	0.613
15	0.260	0.352	0.191	0.656	0.567	0.487	0.550
16	0.521	0.408	0.286	0.774	0.822	0.571	0.749
17	0.518	0.324	0.414	0.630	0.929	0.650	0.795
18	0.559	0.467	0.383	0.649	0.871	0.560	0.797
19	0.375	0.228	0.488	0.626	0.944	0.668	0.743
20	0.330	0.281	0.449	0.624	0.891	0.571	0.687
21	0.228	0.364	0.211	0.640	0.607	0.952	0.667
22	0.191	0.296	0.272	0.604	0.665	0.908	0.641
23	0.156	0.382	0.222	0.672	0.637	0.974	0.669
24	0.189	0.353	0.296	0.695	0.640	0.940	0.679

Convergent validity

KMO and Barlett's test and Rotated Component Matrix were calculated based on the preliminary survey to test the convergent validity of the questionnaire. For the questionnaire to be considered reliable, KMO should be greater than 0.7 and the statistical significance ($p \leq 0.05$), these variables are correlated with each other in general. **Table 5.5** shows KMO and Barlett's test coefficients and shows that they are relatively high, besides that the Rotated Component Matrix is conducted to verify the

interaction of these questions together, so the questionnaire should be deemed convergent validity.

Table 5.5. *Rotated Component Matrix*

	Component				
	1	**2**	**3**	**4**	**5**
old23	0.863				
old21	0.835				
old24	0.826				
old22	0.821				
old19	0.815				
old17	0.794				
old16	0.740				
old20	0.738				
old18	0.698				
old15	0.651				
old14	0.613				
old02		0.886			
old03		0.886			
old01		0.882			
old04		0.847			
old07			0.883		
old05			0.858		
old06			0.799		
old08			0.672		
old09				0.887	
old11				0.834	
old10				0.714	
old12				0.688	
old13					0.686

Content validity

Item statistics and Pearson correlation coefficients intercorrelations between domains and total score of WHOQOL-OLD were calculated based on the preliminary survey to test the content validity of the questionnaire. For the questionnaire to be considered content validity, mean of the question should be greater than 3 and the Pearson correlation coefficient should be greater than 0.5. **Table 5.6** and **5.7** show items statistic value and intercorrelations between domains and total score of

WHOQOL-OLD and show that they are relatively high, so the questionnaire should be deemed content validity.

Table 5.6. *Items Statistics*

	Mean	**SD**		**Mean**	**SD**		**Mean**	**SD**
old01	3.60	1.07	**old05**	4.00	0.95	**old09**	4.07	0.64
old02	3.53	1.07	**old06**	4.00	0.98	**old10**	4.07	0.69
old03	3.53	1.07	**old07**	3.90	1.16	**old11**	4.07	0.64
old04	3.60	0.97	**old08**	3.53	1.33	**old12**	3.90	0.80
	Mean	**SD**		**Mean**	**SD**		**Mean**	**SD**
old13	4.13	0.78	**old17**	4.23	0.68	**old21**	4.50	0.86
old14	4.07	0.79	**old18**	4.40	0.56	**old22**	4.50	0.94
old15	4.17	0.65	**old19**	4.07	0.74	**old23**	4.50	0.82
old16	4.23	0.63	**old20**	4.23	0.63	**old24**	4.50	0.86

Table 5.7. *Intercorrelations between domains and total score of WHOQOL-OLD*

	SAB	**AUT**	**PPF**	**SOP**	**DAD**	**INT**
Sensory Abilities						
Autonomy	0.423					
Past, Present and Future Abilities	0.411	0.480				
Social Participation	0.483	0.479	0.862			
Death and Dying	0.543	0.118	0.395	0.348		
Intimacy	0.203	0.266	0.691	0.677	0.368	
TotalQOL	0.748	0.576	0.821	0.828	0.703	0.704

5.2. Confirmation of Reliability and Validity (N = 442)

5.2.1. Reliability

Cronbach's Alpha and intra-class correlation coefficients (ICC)

The reliability of the survey questions was re-assessed based on the full sample (N=442). The first measure of reliability used is Cronbach's Alpha. As mentioned above, if $0.6 \leq \alpha \leq 0.7$, the survey would be considered acceptable and if $\alpha \geq 0.7$, the questionnaire is considered good.

Each domain of the questionnaire as well as the whole questionnaire were evaluated and the results are shown in **table 5.8**:

Table 5.8. *Cronbach's Alpha coefficient of each domain in survey*

Domain	Cronbach's Alpha α
Sensory Ability (old01-04)	0.901
Death and Dying (old05-08)	0.793
Autonomy (old09-12)	0.680
Past, present, future activities (old13-16)	0.793
Social participation (old17-20)	0.800
Intimacy (old21-24)	0.844
Total Questionnaire (24 questions)	0.889

It can be seen that the Cronbach's Alpha coefficient for the entire questionnaire is quite high, $\alpha = 0.889$. This implies that the WHOQOL-OLD questionnaire is reliable and suitable for the conditions of Vietnam.

Besides, the value of Cronbach's Alpha for each domain range from 0.680 to 0.901, The Autonomy domain has the lowest Cronbach's Alpha reliability value at 0.680, indicating that it may not be appropriate for the Vietnamese context.

The second measure of reliability used is intra-class correlations coefficients (ICC). This method is used to check the stability of the survey questions. If the ICC coefficient is 0.70 or above, it means that the questionnaire achieves high reliability. The results are shown in **Table 5.9**.

Table 5.9. *Analysis for test-retest reliability for questionnaire*

Domain	ICC value	95% confidence interval	p-value
Sensory Ability (old01-04)	0.893	0.876 – 0.908	< 0.001
Death and Dying (old05-08)	0.784	0.750 – 0.815	< 0.001
Autonomy (old09-12)	0.664	0.610 – 0.713	< 0.001
Past, present, future activities (old13-16)	0.786	0.751 – 0.817	< 0.001
Social participation (old17-20)	0.790	0.756 – 0.820	< 0.001
Intimacy (old21-24)	0.827	0.799 - 0.852	< 0.001
Total Questionnaire (24 questions)	0.884	0.867 – 0.899	< 0.001

Again, it can be seen that the WHOQOL-OLD questionnaire is reliable. The ICC coefficient for the entire questionnaire is 0.884, whereas in each domain, ICC coefficients range from 0.664 to 0.893. Similarly to Cronbach's Alpha Coefficient, Autonomy also offers the lowest reliability coefficient value at 0.664. However, this is a fairly high value and acceptable.

5.2.2. Validity

The validity of the survey questions was re-assessed based on the full sample (N=442) through discriminant validity, construct validity, convergent validity and content validity

Discriminant validity

To assess the discriminant validity of the questionnaire, the researcher evaluated the structure of the questionnaire through analytical method - Confirmatory Factor Analysis (CFA) with the in-depth analysis as: Chi-square (χ^2), Chi-square/ degree of freedom (χ^2/df), Root Mean Square of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Goodness of Fit Index (GFI).

As mentioned above, if $\chi^2/df \leq 5$, the survey would be considered acceptable and if $\chi^2/df \leq 5$, the questionnaire is considered good. The RMSEA coefficients should be smaller than 0.2 and the NFI, CFI and GFI values should be greater than 0.7

The discriminant validity of the whole questionnaire was evaluated and the results are shown in **table 5.10**

Table 5.10. *Goodness of fit results*

	χ^2	χ^2/df	RMSEA	NFI	CFI	GFI
6 domains	683.832	2.70	0.199	0.842	0.890	0.863

It can be seen that the value of the entire of questionnaire is quite good, χ^2/df = 2.70. It means the fit result in whole questionnaire get high. The RMSEA value is acceptable. Besides that, the values of NFI, CFI and GFI get relative high, greater than 0.80. With this results, it can be seen that each domain has associated closely and intimately to other domains and whole of the questionnaire, so the questionnaire should be deemed discriminant validity and appropriated for the Vietnamese context.

Construct validity

To assess correlation in terms of the construct validity of the questions in the WHOQOL-OLD questionnaire, the questionnaire was analyzed by using Pearson correlation coefficient between the question and the hypotheses of partial or total of questionnaire. As mentioned above, if 0.6 ≤ Pearson correlation coefficient ≤ 0.7, the survey would be considered acceptable and if Pearson correlation coefficient ≥ 0.7,

the questionnaire is considered good. It means the match between the questions and the domains in the questionnaire has good interaction with each other. The results are shown in **table 5.11**.

Table 5.11. *Correlation coefficient between items and hypothesized or total score*

No.	Sensory ability	Death and dying	Autonomy	Past, present, future activities	Social participation	Intimacy	Total score
1	0.880	0.145	0.292	0.312	0.345	0.250	0.602
2	0.900	0.263	0.281	0.297	0.329	0.216	0.623
3	0.884	0.292	0.287	0.329	0.392	0.270	0.662
4	0.827	0.271	0.300	0.289	0.324	0.264	0.614
5	0.281	0.719	0.128	0.079	0.081	0.106	0.382
6	0.230	0.817	0.142	0.130	0.113	0.150	0.425
7	0.116	0.784	0.064	0.005	0.050	0.054	0.273
8	0.244	0.799	0.130	0.117	0.076	0.144	0.409
9	0.182	0.106	0.698	0.189	0.168	0.245	0.367
10	0.199	0.117	0.704	0.286	0.201	0.258	0.410
11	0.194	0.087	0.703	0.249	0.281	0.211	0.398
12	0.345	0.112	0.724	0.432	0.477	0.376	0.587
13	0.239	0.063	0.355	0.756	0.410	0.456	0.545
14	0.297	-0.003	0.328	0.794	0.507	0.418	0.563
15	0.297	0.119	0.303	0.809	0.494	0.432	0.597
16	0.269	0.163	0.316	0.761	0.514	0.478	0.606
17	0.419	0.105	0.370	0.509	0.779	0.432	0.642
18	0.327	0.057	0.300	0.459	0.798	0.392	0.568
19	0.312	0.023	0.297	0.486	0.813	0.431	0.571
20	0.207	0.042	0.308	0.478	0.747	0.364	0.511
21	0.186	0.101	0.301	0.413	0.353	0.803	0.509
22	0.272	0.114	0.324	0.513	0.461	0.929	0.601
23	0.255	0.144	0.324	0.495	0.459	0.827	0.599
24	0.216	0.119	0.323	0.430	0.402	0.790	0.541

Again, it can be seen that the WHOQOL-OLD questionnaire is construct valid. The Pearson correlation coefficients for the Sensory Ability offers the highest coeffecients from 0.827 to 0.900. Similarly to Cronbach's Alpha Coefficient and ICC, Autonomy also offers the lowest coefficient values from 0.698 to 0.724. However, this is a fairly high value and acceptable.

Convergent validity

To assess the convergent validity of the questions in the WHOQOL-OLD questionnaire, KMO and Barlett's Test and Rotated Component Matrix were used to

analyze the convergent validity. For the questionnaire to be considered reliable, KMO should be greater than 0.7 and the statistical significance ($p \leq 0.05$), these variables are correlated with each other in general

Table 5.12. *KMO and Bartlett's Test results*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.856
Bartlett's Test of Sphericity	Approx. Chi-Square	4.222E3
	df	376
	Sig.	.000

Table 5.13. *Rotated Component Matrix*

	Component					
	1	**2**	**3**	**4**	**5**	**6**
old02	0.889					
old01	0.885					
old03	0.816					
old04	0.785					
old21		0.800				
old24		0.766				
old23		0.762				
old22		0.734				
old18			0.793			
old17			0.713			
old19			0.671			
old20			0.529			
old06				0.829		
old07				0.809		
old08				0.734		
old05				0.696		
old13					0.731	
old15					0.707	
old14					0.691	
old16					0.551	
old09						0.751
old10						0.724
old11						0.703
old12						0.499

As the result in **table 5.12** above, it can be seen that the coefficient of KMO and Barlett's test reached 0.856, this is a high level of conformity of the elements in the questionnaire survey. And p-value = 0.000, it has a statistically significant at a confidence level is 99.9%.

On the other hand, Rotated Component Matrix also was tested to verify the interaction. Through the results were shown in **table 5.13**, it can be seen that the questions were divided into 6 groups, each group has 4 questions.

With this results, it can be seen that the question in each domain has associated closely and intimately to other questions in the same group, so the questionnaire should be deemed convergent validity and appropriated for the Vietnamese context.

Content validity

Content validity was assessed by items statistics and Pearson correlation coefficients intercorrelations between domains and total score of WHOQOL-OLD. For the questionnaire to be considered content validity, mean of the question should be greater than 3 and the Pearson correlation coefficient should be greater than 0.5. **Table 5.14** and **5.15** show items statistic value and intercorrelations between domains and total score of WHOQOL-OLD and show that they are relatively high

Table 5.14. *Items statistic results*

	Mean	**SD**		**Mean**	**SD**		**Mean**	**SD**
old01	4.07	0.898	**old05**	4.13	0.847	**old09**	3.98	0.656
old02	4.00	0.881	**old06**	4.08	0.868	**old10**	4.10	0.672
old03	3.85	1.049	**old07**	4.19	0.835	**old11**	4.08	0.607
old04	3.95	0.896	**old08**	4.00	0.968	**old12**	3.96	0.753
	Mean	**SD**		**Mean**	**SD**		**Mean**	**SD**
old13	4.04	0.743	**old17**	4.09	0.727	**old21**	4.13	0.649
old14	3.95	0.769	**old18**	4.07	0.694	**old22**	4.13	0.739
old15	4.06	0.735	**old19**	4.01	0.727	**old23**	4.17	0.638
old16	4.11	0.738	**old20**	4.12	0.772	**old24**	4.27	0.647

The results based on **table 5.14** show that the mean values of each question range from 3.85 to 4.27, this is a range of relative high value. It means the interactive content of the questions is quite good.

It can be seen that the intercorrelation coefficients between domains and total score of WHOQOL-OLD range from 0.480 to 0.740. The results can be acceptable,

the Death and Dying domain has the lowest value at 0.480, indicating that it may not be appropriate for the Vietnamese context.

Table 5.15. *Intercorrelations between domains and total score of WHOQOL-OLD*

	SAB	**AUT**	**PPF**	**SOP**	**DAD**	**INT**
Sensory Abilities						
Autonomy	0.331					
Past, Present and Future Abilities	0.352	0.417				
Social Participation	0.401	0.407	0.617			
Death and Dying	0.280	0.150	0.108	0.072		
Intimacy	0.288	0.392	0.572	0.517	0.147	
TotalQOL	0.719	0.630	0.740	0.730	0.480	0.694

With the results confirmation above, the WHOQOL-OLD questionnaire should be deemed content validity and appropriated for the Vietnamese context.

PART 2: DESCRIPTIVE STATISTICS

5.3. Quality of Life Index

The WHOQOL-OLD module has 24 questions which are divided into 6 categories using Likert-scaled to evaluating the quality of life of elderly. Each category has 4 items, so that all categories, the score of possible values can distribute from 4 to 20. After finished evaluation, the score of each part can be combined to give a general score (overall score) for quality of life of elderly.

Table 5.16. *Quality of life index*

		TotalQOL	**SAB**	**DAD**	**AUT**	**PPF**	**SOP**	**INT**
N	Valid	442	442	442	442	442	442	442
	Missing	0	0	0	0	0	0	0
Mean		97.56	15.88	16.41	16.12	16.16	16.29	16.70
Std. Deviation		9.75	3.25	2.75	1.90	2.33	2.29	2.17
Minimum		62.00	8.00	8.00	9.00	7.00	9.00	4.00
Maximum		120.00	20.00	20.00	20.00	20.00	20.00	20.00

With the results obtained as above can be seen that: Elderly people living in Ho Chi Minh City get high quality of life, with a total score was 97.56 ± 9.75. Besides, on the domains, elderly people living in this region feel the optimism in their

way of thinking. These domains are achieving high value: SAB (15.88 ± 3.25), DAD (16.41 ± 2.75), AUT (16.12 ± 1.90), PPF (16.16 ± 2.33), SOP (16.29 ± 2.29) and INT (16.70 ± 2.17).

5.4. Demographic Characteristics of Samples

The study was conducted in Ho Chi Minh, the samples which get required is 442 samples (211 females and 231 males). These flaws are due to sample respondents have not reached the age requirements of the survey (from 60 and older) or a number of factors, the survey vacated because the elderly do not provide them.

Table 5.17. *Demographic characteristics of samples (N = 442)*

			No.	%	Mean	SD
Age	60-69		267	60.41	69.29	6.86
	70-79		132	29.86		
	>= 80		43	9.73		
Gender	Female		211	47.74		
	Male		231	52.26		
Religion	Buddhist		144	32.58		
	Christian		66	14.93		
	Protestant		19	4.30		
	None at all		202	45.70		
	Others		11	2.49		
Education level	Illiterate		89	20.14		
	Elementary/ Middle school		120	27,15		
	High school		112	25.34		
	Over high school (College, Bachelor, Post-graduate,…)		121	27.38		
Income (million VND)	3 - < 5		162	36.70	6.97	3.17
	5 - < 7		100	22.60		
	7 - < 10		88	19.90		
	≥ 10		92	20.80		
Income enough	Yes		416	94.12		
	No		26	5.88		
Marital status	Single		177	40.05		
	In a relationship		265	59.95		
Health status	Very bad		6	1.36		
	Bad		113	25.57		
	Moderate		273	61.76		
	Good		46	10.41		
	Very good		4	0.90		
Disease status	No		71	16.06		
	Yes		371	83.94		
Sensory ability	Listening	Not difficult	321	72.6		
		Difficult	120	27.1		
		Very difficult	1	0.2		

	Visioning	Not difficult	263	59.5
		Difficult	174	39.4
		Very difficult	5	1.1
	Walking	Not difficult	327	74.0
		Difficult	114	25.8
		Very difficult	1	0.2
	Memory	Not difficult	307	69.5
		Difficult	133	30.1
		Very difficult	2	0.5
Daily Activities	Bathing	Yes	5	1.1
		No	437	98.9
	Dressing	Yes	4	0.9
		No	438	99.1
	Toileting	Yes	2	0.5
		No	440	99.5
	Transferring	Yes	10	2.3
		No	432	97.7
	Continence	Yes	2	0.5
		No	440	99.5
	Feeding	Yes	2	0.5
		No	440	99.5

These samples were divided into three age groups: group 1 with 267 elderly people aged 60 to 69 years old; those aged 70 to 79 are classified into group 2 with the number of 132 elderly people; and 43 elderly people classified in the last group with ages 80 and above.

Besides, the survey sample was surveyed on other factors such as religion (Buddhist, Christian, Protestant, None at all or others), level of education (Illiterate, Elementary/Middle School, High school and over High School), marital status (single, in a relationship), health status (very bad, bad, moderate, good and very good) and disease status. These indicators are statistical **table 5.16** above.

Besides, the researcher also conducted surveys on Sensory Abilities and the aid of the elderly relatives in their daily activities. With the results obtained, most of the elderly people living in this survey do not need the help of relatives in their daily activities. About sensory ability aspect, most elderly people have problems with their senses; however, its impact is not too high for their activities.

5.5. Relationship between QOL and Demographic Factors of Samples

5.5.1. Age

Age is also one of the factors affecting the quality of life of the elderly. When age change, people also change their perceptions about the factors affecting their quality of life.

Based on the results table below, can be seen clearly, the age factor is a significant factor in 99.9% (p-value = 0.000) and it had a major impact, direct impact to quality of life of elderly living in Ho Chi Minh city. The respondents in the age group from 60-69 years of age said that age will affect their quality of life higher than those in the remaining age groups through the "mean" index higher than their the remaining age groups in every aspect of quality of life and overall quality of life.

Besides, age is also a factor directly influencing the views of older people surveyed. These elderly people surveyed said that age will have a huge impact to the SAB, AUT, PPF, SOP at a statistically significant 99.9% up (p-value = 0.000). On the other hand, the age factor also interact to DAD, INT degree in statistics less than 95% (0.05 > p-value > 0.001).

Table 5.18. *The relationship between age and domains*

Domain	Age	N	mean	SD	F	df	P
Sensory Ability	60-69	267	4.01	0.73	11.062	441	0.000
	70-79	132	3.84	0.87			
	≥ 80	43	3.56	0.93			
	Total	442	3.97	0.81			
Death and Dying	60-69	267	4.16	0.60	5.234	441	0.006
	70-79	132	3.95	0.77			
	≥ 80	43	4.24	0.82			
	Total	442	4.10	0.69			
Autonomy	60-69	267	4.09	0.48	11.470	441	0.000
	70-79	132	4.00	0.41			
	≥ 80	43	3.73	0.53			
	Total	442	4.03	0.48			
Past, present, future activities	60-69	267	4.15	0.54	13.926	441	0.000
	70-79	132	3.89	0.60			
	≥ 80	43	3.81	0.60			
	Total	442	4.04	0.58			
Social participation	60-69	267	4.20	0.49	20.306	441	0.000
	70-79	132	3.91	0.61			
	≥ 80	43	3.76	0.67			
	Total	442	4.07	0.57			

Intimacy	60-69	267	4.23	0.50	4.046	441	0.018
	70-79	132	4.09	0.58			
	≥ 80	43	4.06	0.65			
	Total	442	4.17	0.54			
Total QOL	60-69	267	4.16	0.37	19.362	441	0.000
	70-79	132	3.95	0.41			
	≥ 80	43	3.86	0.44			
	Total	442	4.06	0.41			

5.5.2. Gender

Table 5.19. *The relationship between gender and domains*

Domain	Gender	N	mean	SD	t	p	diff
Sensory Ability	Male	231	3.94	0.79	-0.755	0.450	-0.058
	Female	211	4.00	0.83			
Death and Dying	Male	231	4.14	0.68	1.230	0.219	0.080
	Female	211	4.06	0.69			
Autonomy	Male	231	4.05	0.45	1.090	0.276	0.049
	Female	211	4.00	0.50			
Past, present, future activities	Male	231	4.02	0.60	-0.597	0.551	-0.033
	Female	211	4.06	0.56			
Social participation	Male	231	4.02	0.57	-2.086	0.038	-0.113
	Female	211	4.13	0.57			
Intimacy	Male	231	4.17	0.54	-0.174	0.862	-0.009
	Female	211	4.17	0.55			
Total QOL	Male	231	4.06	0.40	-0.362	0.718	-0.014
	Female	211	4.07	0.41			

Gender is also a demographic factor to assess quality of life for elderly people in Ho Chi Minh City.

Based on the results obtained from the analysis of data collected, gender is a factor in almost no effect on the quality of life for elderly people in Ho Chi Minh City by the p-value is very large, there is no statistical significance. Therefore, the quality of life is almost no difference between men and women.

In terms of factors affecting the quality of life, the only aspect SOP is no difference between men and women when considering statistical significance level of p-value <0.05. As for the other aspects, gender differences do not affect them.

5.5.3. Religion

A demographic factor that the researcher considered interested in the survey on the quality of life that older people are religious. In Vietnam today there are many religions, but in this survey, the researcher just pick out some major religions and popular in Vietnam. In this survey, 144 people are Buddhists, 66 Christians, 19 Protestants, 202 people have no religion and 11 people of other religions.

Through the results obtained in the **table 5.18.**, the religious element is not nearly as factors affecting the quality of life of elderly people in Ho Chi Minh. This factor does not have a statistically significant p-value when the value has exceeded the threshold. Therefore, older people have religion or no religion without differentiation on quality of life.

In terms of domains affecting the quality of life for the elderly, the religious factor only affects PPF with statistical level of 95% (p-value = 0.050). The remaining elements are not subject to the influence of religion.

Table 5.20. *The relationship between religion and domains*

Domain	Religion	N	mean	SD	F	df	p
Sensory Ability	Buddhist	144	3.95	0.87	1.735	441	0.141
	Christian	66	4.12	0.80			
	Protestant	19	4.26	0.47			
	None at all	202	0.89	0.81			
	Others	11	4.14	0.47			
Death and Dying	Buddhist	144	4.04	0.74	1.762	441	0.135
	Christian	66	4.19	0.63			
	Protestant	19	4.21	0.33			
	None at all	202	4.09	0.70			
	Others	11	4.52	0.33			
Autonomy	Buddhist	144	3.98	0.49	1.143	441	0.336
	Christian	66	4.06	0.47			
	Protestant	19	4.09	0.37			
	None at all	202	4.04	0.48			
	Others	11	4.23	0.26			
Past, present, future activities	Buddhist	144	4.03	0.61	2.388	441	0.050
	Christian	66	4.02	0.74			
	Protestant	19	4.32	0.46			
	None at all	202	4.01	0.51			
	Others	11	4.41	0.49			
Social participation	Buddhist	144	4.08	0.60	1.645	441	0.162
	Christian	66	4.13	0.60			
	Protestant	19	4.24	0.28			
	None at all	202	4.02	0.57			
	Others	11	4.36	0.28			

Intimacy	Buddhist	144	4.12	0.50	1.439	441	0.220
	Christian	66	4.24	0.58			
	Protestant	19	4.25	0.47			
	None at all	202	4.17	0.57			
	Others	11	4.45	0.22			
Total QOL	Buddhist	144	4.03	0.43	3.036	441	0.170
	Christian	66	4.13	0.41			
	Protestant	19	4.23	0.14			
	None at all	202	4.04	0.40			
	Others	11	4.35	0.23			

5.5.4. Education level

Educational attainment is also an interesting element of interest in the process of evaluating the quality of life of the elderly. Researcher who conducted the elderly classified according to level of education is as follows: 89 illiterates, 120 people have qualified elementary / Middle school, 112 at high school level and 121 persons than high school level.

Table 5.21. *The relationship between education level and domains*

Domain	Level	N	mean	SD	F	df	p
Sensory Ability	Illiterate	89	4.47	0.41	16.533	441	0.000
	Elementary/ Middle school	120	3.95	0.80			
	High school	112	3.80	0.86			
	Over high school (College, Bachelor, Post-graduate,…)	121	3.78	0.86			
Death and Dying	Illiterate	89	4.14	0.36	6.418	441	0.000
	Elementary/ Middle school	120	4.22	0.66			
	High school	112	4.19	0.76			
	Over high school (College, Bachelor, Post-graduate,…)	121	3.87	0.78			
Autonomy	Illiterate	89	4.10	0.44	0.835	441	0.475
	Elementary/ Middle school	120	4.03	0.50			
	High school	112	3.99	0.47			
	Over high school (College, Bachelor, Post-graduate,…)	121	4.02	0.48			

Past, present, future activities	Illiterate	89	4.31	0.43	10.038	441	0.000
	Elementary/ Middle school	120	4.04	0.51			
	High school	112	3.89	0.62			
	Over high school (College, Bachelor, Post-graduate,…)	121	3.98	0.65			
Social participation	Illiterate	89	4.33	0.36	8.077	441	0.000
	Elementary/ Middle school	120	4.04	0.59			
	High school	112	4.00	0.59			
	Over high school (College, Bachelor, Post-graduate,…)	121	3.99	0.62			
Intimacy	Illiterate	89	4.24	0.32	1.402	441	0.242
	Elementary/ Middle school	120	4.18	0.50			
	High school	112	4.20	0.58			
	Over high school (College, Bachelor, Post-graduate,…)	121	4.10	0.67			
Total QOL	Illiterate	89	4.27	0.14	11.493	441	0.000
	Elementary/ Middle school	120	4.07	0.42			
	High school	112	4.01	0.43			
	Over high school (College, Bachelor, Post-graduate,…)	121	3.96	0.45			

The table above shows that education level is a factor that most clearly affects the quality of life of elderly people in Ho Chi Minh City, Vietnam. This is a powerful factor and impact directly on the quality of life of elderly people with high statistical significance on 99.9% (p-value = 0.000).

When considering other domains of the survey questions with the state of education, the researcher found that education level affects domains such as high SAB, DAD, PPF and SOP with the level of statistical significance up to 99.9% (p-

value = 0.000). Meanwhile, the two domains - AUT and INT, education level almost no affect 2 domains that because it is not statistically significant (p-value> 0.1).

5.5.5. Marital status

Marital status is also a factor in demographic that researcher is interested in the process of evaluating the quality of life of elderly people in Ho Chi Minh City. Through survey interviewed 177 people who live in single and 265 people living in a relationship.

Through the results **table 5.22**., we can see that marital status is a factor that affects the quality of life for elderly people in Southern Vietnam, but the impact of this factor is not be strong as with age and education level. This factor is meaningful only when considered statistically significant at 95% (p-value = 0.005).

Besides, when the terms of marital status, how to influence the quality of life, we can see that, it has a strong impact and statistically significant up to 99.9% (p-value = 0.001) with SAB, impact and statistically significant at 95% with PPF domain (p-value = 0.007), SOP domain (p-value = 0.004). Other domains have without the influence of marital status to them.

Table 5.22. *The relationship between marital status and domains*

Domain	Marital Status	N	mean	SD	t	p	diff
Sensory Ability	Single	177	4.12	0.72	3.328	0.001	0.251
	In a relationship	265	3.87	0.85			
Death and Dying	Single	177	4.13	0.56	0.726	0.468	0.046
	In a relationship	265	4.08	0.76			
Autonomy	Single	177	4.04	0.46	0.427	0.670	0.020
	In a relationship	265	4.02	0.48			
Past, present, future activities	Single	177	4.13	0.53	2.692	0.007	0.151
	In a relationship	265	3.98	0.61			
Social participation	Single	177	4.17	0.53	2.862	0.004	0.158
	In a relationship	265	4.01	0.59			
Intimacy	Single	177	4.18	0.48	0.253	0.801	0.013
	In a relationship	265	4.17	0.58			
Total QOL	Single	177	4.13	0.37	2.796	0.005	0.106
	In a relationship	265	4.02	0.43			

5.5.6. Health status

Table 5.23. *The relationship between health status and domains*

Domain	Status	N	mean	SD	F	df	p
Sensory Ability	Very bad	6	2.87	0.77	3.438	441	0.009
	Bad	113	3.91	0.81			
	Moderate	273	4.03	0.78			
	Good	46	3.94	0.91			
	Very good	4	3.69	1.03			
Death and Dying	Very bad	6	3.71	0.93	0.561	441	0.691
	Bad	113	4.10	0.66			
	Moderate	273	4.11	0.65			
	Good	46	4.11	0.93			
	Very good	4	3.94	0.47			
Autonomy	Very bad	6	3.92	0.66	2.347	441	0.054
	Bad	113	4.14	0.45			
	Moderate	273	4.01	0.45			
	Good	46	3.92	0.61			
	Very good	4	3.94	0.38			
Past, present, future activities	Very bad	6	4.08	0.86	1.301	441	0.269
	Bad	113	4.13	0.55			
	Moderate	273	4.00	0.59			
	Good	46	4.07	0.53			
	Very good	4	3.69	0.88			
Social participation	Very bad	6	4.17	0.75	1.019	441	0.397
	Bad	113	4.10	0.57			
	Moderate	273	4.09	0.57			
	Good	46	3.93	0.58			
	Very good	4	3.81	0.55			
Intimacy	Very bad	6	4.58	0.80	1.364	441	0.246
	Bad	113	4.19	0.56			
	Moderate	273	4.16	0.53			
	Good	46	4.20	0.53			
	Very good	4	3.81	0.55			
Total QOL	Very bad	6	3.89	0.62	0.897	441	0.466
	Bad	113	4.09	0.39			
	Moderate	273	4.07	0.39			
	Good	46	4.03	0.48			
	Very good	4	3.81	0.60			

Health status is one of the key factors to assess the quality of life of the elderly. In the survey with 6 elderly persons said that they have very bad health, 113 people have bad health, and 273 people said they had average health level, 46 people are in good health and 4 persons have very good health.

Contrary to initial predictions, through the table above, we can see that the health status is almost no impact on the quality of life of elderly people in Ho Chi

Minh City. These elderly people surveyed do not think that this is a factor to affect their quality of life. This element has no statistical significance (p-value = 0.466).

When considering the remaining domains of quality of life, the only domain that SAB has affected the health factor. In this respect, health impact and statistically significant at 95% (p-value = 0.009). The remaining domains, the health factor has no impact and no statistical significance.

5.5.7. Economic status

Table 5.24. *The relationship between income per month and domains*

Domain	Income per month	N	mean	SD	F	df	P
Sensory Ability	3 - <5	162	4.02	0.81	3.491	441	0.016
	5 - <7	100	4.13	0.69			
	7 - <10	88	3.79	0.85			
	≥ 10	92	3.87	0.86			
Death and Dying	3 - <5	162	4.09	0.66	0.320	441	0.811
	5 - <7	100	4.10	0.67			
	7 - <10	88	4.06	0.63			
	≥ 10	92	4.16	0.80			
Autonomy	3 - <5	162	4.06	0.51	0.816	441	0.486
	5 - <7	100	4.03	0.43			
	7 - <10	88	4.04	0.49			
	≥ 10	92	3.96	0.45			
Past, present, future activities	3 - <5	162	4.13	0.56	2.191	441	0.088
	5 - <7	100	4.00	0.59			
	7 - <10	88	3.97	0.56			
	≥ 10	92	3.99	0.62			
Social participation	3 - <5	162	4.18	0.50	5.462	441	0.001
	5 - <7	100	4.12	0.59			
	7 - <10	88	4.01	0.59			
	≥ 10	92	3.90	0.62			
Intimacy	3 - <5	162	4.18	0.53	0.169	441	0.917
	5 - <7	100	4.19	0.49			
	7 - <10	88	4.19	0.54			
	≥ 10	92	4.14	0.63			
Total QOL	3 - <5	162	4.11	0.38	2.153	441	0.093
	5 - <7	100	4.09	0.36			
	7 - <10	88	4.01	0.42			
	≥ 10	92	4.00	0.47			

Similar to the health factors, income is one of the main factors affecting the quality of life of the elderly. In the survey, we have 162 people with an income of 3-5 million VND per month (150 – 250 USD/ 1 month), in which 100 people have incomes from 5-7 million VND (250 – 350 USD/ 1 month), 88 people have incomes

from 7-10 million VND (350 - 500 USD/ 1 month) and 92 who have incomes above 10 million VND (over 500 USD/ 1 month).

Along with the above table, we can see that income is a factor affecting the quality of life of elderly people in Ho Chi Minh City. However, this factor is relatively little impact and only statistically significant when considering the extent of 90% (p-value = 0.100).

For other domains of quality of life, the monthly income greatly affect SOP when it has significantly up to 99.9% (p-value = 0.001). SAB has been relatively less impact when it is only at the level of statistical 95% (p-value = 0.016). PPF influenced the income element at least when considering the level of 90% (p-value = 0.088). The remaining domains almost were not influenced by the income factor.

Table 5.25. *The relationship between economic status and domains*

Domain	Enough money	N	mean	SD	t	p	diff
Sensory Ability	Yes	416	4.01	0.78	4.425	0.000	0.750
	No	26	3.26	0.98			
Death and Dying	Yes	416	4.13	0.65	2.299	0.031	0.532
	No	26	3.60	1.01			
Autonomy	Yes	416	4.05	0.47	4.085	0.000	0.410
	No	26	3.64	0.50			
Past, present, future activities	Yes	416	4.07	0.57	4.857	0.000	0.591
	No	26	3.48	0.62			
Social participation	Yes	416	4.09	0.57	2.510	0.012	0.306
	No	26	3.78	0.61			
Intimacy	Yes	416	4.19	0.53	2.566	0.011	0.297
	No	26	3.89	0.70			
Total QOL	Yes	416	4.09	0.39	5.712	0.000	0.481
	No	26	3.61	0.46			

After verifying income factor influences how the quality of life of old people, the researcher will further analyze factor that it has enough income to spend every day and how it affects quality of life of elderly people how in Ho Chi Minh.

In the survey of 442 elderly people, there are 416 people with spending that they are enough to their spending and the remaining 26 people said that not enough for their spending. Elements of the income status have enough money to spend or not directly affect the quality of life of elderly people in Ho Chi Minh City. This factor strongly impacts while achieving significant level up to 99.9% (p-value = 0.000).

When considering the remaining domains of quality of life, SAB, AUT and PPF domain have strong interactions with spending enough money or not factor reaching statistical significance level at 99.9% (p- value = 0.000). These factors DAD, SOP and INT affect spending enough money or not factor being considered at the level of 95% (p-value respectively 0.031; 0.012; 0.011).

5.5.8. Diseases status

Table 5.26. *The relationship between diseases status and domains*

Domain	Disease	N	mean	SD	t	p	diff
Sensory Ability	Yes	371	3.98	0.79	0.380	0.705	0.044
	No	71	3.94	0.91			
Death and Dying	Yes	371	4.10	0.66	-0.237	0.813	-0.025
	No	71	4.13	0.82			
Autonomy	Yes	371	4.07	0.47	3.496	0.001	0.213
	No	71	3.85	0.48			
Past, present, future activities	Yes	371	4.08	0.58	2.802	0.005	0.210
	No	71	3.87	0.54			
Social participation	Yes	371	4.13	0.56	4.631	0.000	0.337
	No	71	3.79	0.53			
Intimacy	Yes	371	4.19	0.55	1.177	0.240	0.083
	No	71	4.11	0.51			
Total QOL	Yes	371	4.09	0.39	2.760	0.006	0.144
	No	71	3.95	0.43			

For elderly people, the condition is a very important factor in assessing the quality of their lives. In the survey, there are 371 people who said they had at least one type of disease, 71 people left with no disease.

Factor of illness that affect the quality of life of elderly people living in Ho Chi Minh City as it was considered to level 95% (p-value = 0.006).

As consideration to other domains of quality of life, disease status factor has a strong impact on AUT and SOP aspect when considering the reliability level 99.9% (p-value respectively 0.001 and 0.000).

PPF domain has affected the disease status when it being considered in the reliability of 95% (p-value = 0.005). The remaining domains almost are not affected by this factor.

5.5.9. Sensory abilities

Table 5.27. *The relationship between sensory abilities and domains*

Domain		level	N	mean	SD	F	df	p
Sensory Ability	**Visioning**	**1**	263	4.03	0.80	3.573	441	0.029
		2	174	3.89	0.81			
		3	5	3.25	0.95			
	Listening	**1**	321	4.03	0.80	6.444	441	0.002
		2	120	3.81	0.81			
		3	1	3.00				
	Walking	**1**	327	3.98	0.81	0.199	441	0.820
		2	114	3.95	0.82			
		3	1	3.50				
	Memory	**1**	307	3.93	0.83	1.971	441	0.141
		2	133	4.07	0.76			
		3	2	3.38	0.18			
Death and dying	**Visioning**	**1**	263	4.12	0.68	5.055	441	0.007
		2	174	4.09	0.68			
		3	5	3.15	0.86			
	Listening	**1**	321	4.11	0.67	0.198	441	0.821
		2	120	4.07	0.73			
		3	1	4.00				
	Walking	**1**	327	4.09	0.70	0.919	441	0.400
		2	114	4.12	0.64			
		3	1	5.00				
	Memory	**1**	307	4.09	0.73	3.508	441	0.031
		2	133	4.14	0.55			
		3	2	3.88	0.18			
Autonomy	**Visioning**	**1**	263	4.04	0.45	2.140	441	0.119
		2	174	4.03	0.49			
		3	5	3.60	1.08			
	Listening	**1**	321	4.03	0.46	1.418	441	0.243
		2	120	4.05	0.51			
		3	1	3.25				
	Walking	**1**	327	4.03	0.47	0.490	441	0.613
		2	114	4.03	0.49			
		3	1	4.50				
	Memory	**1**	307	4.02	0.48	8.043	441	0.000
		2	133	4.07	0.45			
		3	2	2.75	0.35			
Past, present, future activities	**Visioning**	**1**	263	4.02	0.57	0.276	441	0.759
		2	174	4.07	0.59			
		3	5	4.00	0.81			
	Listening	**1**	321	4.05	0.57	1.143	441	0.320
		2	120	4.01	0.61			
		3	1	3.25				

	Walking	**1**	327	4.00	0.59	3.638	441	0.027
		2	114	4.15	0.55			
		3	1	4.75				
	Memory	**1**	307	3.98	0.59	6.419	441	0.002
		2	133	4.19	0.54			
		3	2	3.88	0.53			
Social participation	**Visioning**	**1**	263	4.07	0.58	1.438	441	0.238
		2	174	4.06	0.57			
		3	5	4.50	0.47			
	Listening	**1**	321	4.08	0.56	0.610	441	0.544
		2	120	4.05	0.61			
		3	1	3.50				
	Walking	**1**	327	4.04	0.59	2.632	441	0.073
		2	114	4.18	0.51			
		3	1	4.25				
	Memory	**1**	307	4.00	0.57	8.831	441	0.000
		2	133	4.24	0.53			
		3	2	4.13	0.88			
Intimacy	**Visioning**	**1**	263	4.17	0.55	0.143	441	0.867
		2	174	4.18	0.53			
		3	5	4.30	0.57			
	Listening	**1**	321	4.17	0.53	0.051	441	0.950
		2	120	4.17	0.59			
		3	1	4.00				
	Walking	**1**	327	4.17	0.56	0.223	441	0.800
		2	114	4.19	0.50			
		3	1	4.50				
	Memory	**1**	307	4.17	0.55	0.264	441	0.768
		2	133	4.20	0.52			
		3	2	4.00	0.71			
Total QOL	**Visioning**	**1**	263	4.08	0.41	1.281	441	0.279
		2	174	4.05	0.40			
		3	5	3.80	0.51			
	Listening	**1**	321	4.08	0.40	2.392	441	0.093
		2	120	4.03	0.42			
		3	1	3.33				
	Walking	**1**	327	4.05	0.42	1.054	441	0.349
		2	114	4.10	0.37			
		3	1	4.42				
	Memory	**1**	307	4.03	0.43	6.293	441	0.002
		2	133	4.15	0.34			
		3	2	3.50	0.06			

1: Not difficult **2: Difficult** **3: Very difficult**

For humans, the higher the age, the decline of the senses is also part affects the quality of life of the elderly. In this survey, researcher conducted a survey on four

senses are: visioning, listening, walking and memory to see four factors impact how the quality of life of elderly people is.

When considering the quality of life, with a significant level of 95%, memory element (p-value = 0.002) affects the quality of life of the elderly. When extended reliability up to 90%, the additional factor - hear (p-value = 0.093) affects the quality of life of elderly people.

When examining four factors (vision, hearing, movement and memory) with other domains of quality of life assessment, walking and memory are two factors that affect PPF and SOP and it makes statistical significance level at 95%. In terms of AUT, memory is the only factor affecting it with confidence interval up to 99.9% (p-value = 0.000). And when using the 95% confidence interval, listening and visioning will have an impact on SAB domain and visioning, memory will affect DAD domain.

5.5.10. Daily Activities

The last factor that the researcher surveyed was that the support of relatives for the elderly of daily activities. These activities include 6 factors: bathing, dressing, toileting, transferring, continence and feeding. Factors to be examined are factors that elderly people need the help or not.

When considering overall quality of life, both of 6 factors are no impact on the quality of life of the elderly.

Table 5.28. *The relationship between daily activities and domains*

Domain	Need Help		N	mean	SD	t	p	diff
Sensory Ability	**Bathing**	**Yes**	5	3.75	0.75	-0.607	0.544	-0.222
		No	437	3.97	0.81			
	Dressing	**Yes**	4	3.69	0.85	-0.697	0.486	-0.285
		No	438	3.97	0.81			
	Toileting	**Yes**	2	3.50	0.71	-0.819	0.413	-0.472
		No	440	3.97	0.81			
	Transferring	**Yes**	10	4.05	0.63	0.317	0.751	0.082
		No	432	3.97	0.82			
	Continence	**Yes**	1	4.00		0.035	0.972	0.028
		No	440	3.97	0.81			
	Feeding	**Yes**	2	3.50	0.71	-0.819	0.413	-0.472
		No	440	3.97	0.81			
Death and dying	**Bathing**	**Yes**	5	4.00	0.68	-0.331	0.741	-0.102
		No	437	4.10	0.69			
	Dressing	**Yes**	4	3.81	0.63	-0.845	0.399	-0.291
		No	438	4.10	0.69			

	Toileting	**Yes**	2	4.25	0.35	0.307	0.759	0.149
		No	440	4.10	0.69			
	Transferring	**Yes**	10	3.70	0.51	-1.875	0.061	-0.411
		No	432	4.11	0.69			
	Continence	**Yes**	1	4.00		-0.149	0.882	-0.102
		No	440	4.10	0.69			
	Feeding	**Yes**	2	4.25	0.35	0.307	0.759	0.149
		No	440	4.10	0.69			
Autonomy	**Bathing**	**Yes**	5	3.85	0.52	-0.853	0.394	-0.183
		No	437	4.03	0.48			
	Dressing	**Yes**	4	3.87	0.60	-0.656	0.512	-0.157
		No	438	4.03	0.48			
	Toileting	**Yes**	2	3.63	0.88	-1.209	0.227	-0.407
		No	440	4.03	0.47			
	Transferring	**Yes**	10	4.03	0.56	-0.037	0.970	-0.006
		No	432	4.03	0.47			
	Continence	**Yes**	1	3.25		-1.643	0.101	-0.781
		No	440	4.03	0.47			
	Feeding	**Yes**	2	3.63	0.88	-1.209	0.227	-0.407
		No	440	4.03	0.47			
Past, present, future activities	**Bathing**	**Yes**	5	3.95	0.69	-0.350	0.727	-0.092
		No	437	4.04	0.58			
	Dressing	**Yes**	4	4.13	0.66	0.290	0.772	0.085
		No	438	4.04	0.58			
	Toileting	**Yes**	2	4.00	1.06	-0.099	0.921	-0.041
		No	440	4.40	0.58			
	Transferring	**Yes**	10	4.37	0.52	1.841	0.066	0.342
		No	432	4.03	0.58			
	Continence	**Yes**	1	4.25		0.359	0.720	0.210
		No	440	4.04	0.58			
	Feeding	**Yes**	2	4.00	1.06	-0.099	0.921	-0.041
		No	440	4.04	0.58			
Social participation	**Bathing**	**Yes**	5	4.00	0.73	-0.289	0.773	-0.074
		No	437	4.07	0.57			
	Dressing	**Yes**	4	4.06	0.83	-0.039	0.969	-0.011
		No	438	4.07	0.57			
	Toileting	**Yes**	2	3.62	0.88	-1.111	0.267	-0.451
		No	440	4.08	0.58			
	Transferring	**Yes**	10	4.40	0.60	1.830	0.068	0.334
		No	432	4.07	0.57			
	Continence	**Yes**	1	4.25		0.308	0.758	0.177
		No	440	4.07	0.57			
	Feeding	**Yes**	2	3.63	0.88	-1.111	0.267	-0.451
		No	440	4.08	0.57			
Intimacy	**Bathing**	**Yes**	5	4.10	0.68	-0.307	0.759	-0.075
		No	437	4.18	0.54			
	Dressing	**Yes**	4	4.19	0.75	0.049	0.961	0.013
		No	438	4.17	0.54			
	Toileting	**Yes**	2	4.13	1.24	-0.128	0.898	-0.049
		No	440	4.17	0.54			

	Transferring	**Yes**	10	4.28	0.51	0.593	0.553	0.103
		No	432	4.18	0.54			
	Continence	**Yes**	1	3.75		-0.780	0.436	-0.425
		No	440	4.18	0.54			
	Feeding	**Yes**	2	4.13	1.24	-0.128	0.898	-0.049
		No	440	4.17	0.54			
Total QOL	**Bathing**	**Yes**	5	3.94	0.43	-0.682	0.496	-0.125
		No	437	4.07	0.41			
	Dressing	**Yes**	4	3.96	0.49	-0.527	0.599	-0.108
		No	438	4.07	0.41			
	Toileting	**Yes**	2	3.85	0.74	-0.735	0.463	-0.211
		No	440	4.07	0.41			
	Transferring	**Yes**	10	4.14	0.35	0.571	0.569	0.074
		No	432	4.06	0.41			
	Continence	**Yes**	1	3.92		-0.365	0.715	-0.149
		No	440	4.07	0.41			
	Feeding	**Yes**	2	3.85	0.74	-0.735	0.463	-0.212
		No	440	4.07	0.41			

Similar to the quality of life of the elderly, when considering the impact of the 6 elements to domains of the survey questionnaire, 6 factors almost are no impact on these domains. Another factor when considering the impact of the 90% confidence interval, which is the transferring factors affecting DAD domain (p-value = 0.061), PPF domain (p-value = 0.066), SOP domain (p-value = 0.068).

PART 3: REGRESSION

After studying the factors that affect the quality of life for the elderly, the researcher conducted a regression analysis of such elements. For multivariate regression, the researcher will analyse based on the interview areas and total samples.

Table 5.29. *Results of multivariate regression*

Variables	Coefficient	S.E.	t	p-value	95% confidence interval	
Age	-0.0042	0.0024	-1.80	0.072	-0.0089	0.0004
Gender	-0.0276	0.0300	-0.92	0.357	-0.0866	0.0313
Religion_2	0.0596	0.0475	1.25	0.211	-0.0338	0.1529
Religion_3	-0.0335	0.0764	-0.44	0.661	-0.1836	0.1166
Religion_4	0.0240	0.0352	0.68	0.495	-0.0451	0.0932
Religion_5	0.0906	0.1007	0.90	0.369	-0.1074	0.2886
Education_2	0.0240	0.0515	0.47	0.641	-0.0772	0.1253
Education_3	0.0726	0.0582	1.25	0.213	-0.0417	0.1870
Education_4	-0.0490	0.0574	-0.85	0.394	-0.1618	0.0638
Marital status	0.0755	0.0350	2.16	0.031	0.0068	0.1443
Ln Income	0.5702	0.1521	3.75	0.000	0.2711	0.8692
Income enough	8.5378	2.3957	3.56	0.000	3.8289	13.2468
Health status_2	-0.0924	0.1315	-0.70	0.483	-0.3509	0.1661
Health status_3	-0.1065	0.1288	-0.83	0.409	-0.3597	0.1467
Health status_4	0.0622	0.1382	0.45	0.653	-0.2095	0.3339
Health status_5	-0.1138	0.1994	-0.57	0.569	-0.5058	0.2782
Diseases status	-0.0180	0.0494	-0.36	0.716	-0.1151	0.0792
Daily Activities	0.0729	0.0771	0.94	0.345	-0.0788	0.2245
Rural	0.4938	0.0419	11.78	0.000	0.4114	0.5762
Act	-0.5412	0.1556	-3.48	0.001	-0.8471	-0.2353
Constant	-5.0520	2.3533	-2.15	0.032	-9.6776	-0.4264

Model	R Square	Adjusted R Square	S.E.	p-value
1	0.4162	0.3885	0.3051	0.000

Based on the results obtained in **table 5.29.**, with a 90% confidence interval level, we can see that the quality of life of the elderly living in Ho Chi Minh City is shown through the multivariate regression equation below:

$$\mathbf{Y} = - 0.0042*\mathbf{X_1} + 0.0755*\mathbf{X_2} + 0.5702*\mathbf{X_3} + 8.5378*\mathbf{X_4} + 0.4938*\mathbf{X_5} - 0.5412*\mathbf{X_6} - 5.0520$$

In that:

Y: Total Quality of life

$\mathbf{X_1}$: Age

$\mathbf{X_2}$: Marital Status

$\mathbf{X_3}$: Ln Income

$\mathbf{X_4}$: Income Enough

$\mathbf{X_5}$: Rural

$\mathbf{X_6}$: Act

Based on multivariate regression equation above, the quality of life for elderly people living in Ho Chi Minh City depend on some elements were: age, marital status, ln income, income enough, rural and act. Based on the results above, the higher age of elderly are, the lower quality of life they get. The elderly people living in a relationship have a better quality of life when it was compared with others. These elderly people have high income and they have enough money to spend have better quality of life than others. And the last characteristic that affect to quality of life of elderly people in Southern Vietnam is living area, the elderly people living in rural area have better quality of life than other elderly people living in urban area. With this result, it is entirely consistent with the initial estimate of the researcher. Act factor is created as a new variable in that it was defined by ln income * income enough.

Chapter 6

Discusssion and Conclusions

This is a cross-sectional research was conducted to assess and predict the quality of life for the elderly by specialized instrument, such as WHOQOL-OLD. The questionnaire survey was conducted with 442 elderly (60 or older) living in Ho Chi Minh City, Vietnam. The elderly people living in Ho Chi Minh City get high quality of life; with a total score was 97.56 ± 9.75 with the average age 69.29 ± 6.86. Besides that this intrument has good reliability and validity. Moreover, this research also determines the factors - age, education level, income enough and diseases status – affect to the quality of life among elderly people in Southern Vietnam.

6.1. Reliability and Validity

6.1.1. Reliability

Cronbach's Alpha

Through evaluation reliability coefficient result, Cronbach's Alpha reliability of the questionnaire reached high, $\alpha = 0.889$. With this result, the WHOQOL-OLD questionnaire is in accordance with the conditions of Vietnam. This value is considered to be equivalent to the value of Cronbach's Alpha reliability in WHO manual ($\alpha = 0.89$) [103]. Besides, when compared to other studies in the world, Cronbach's Alpha of the questionnaire also achieve high reliability as WHO [86, 104], Brazil [88, 105] , Norway [106], Mexico [107], Turkey [108], China [87], Spain [109], Taiwan and Germany [90].

Table 6.1. *Summary Cronbach's Alpha Coefficients in total*

	Cronbach's Alpha		**Cronbach's Alpha**
Vietnam	0.89	Mexico	0.88
WHO Group	0.89	China	0.89
Brazil	0.89	Taiwan	0.87
Norway	0.89	Germany	0.85
Turkey	0.85	Spain	0.84

Besides, the value of Cronbach's Alpha for each domain ranging from 0.680 to 0.901, it showed that each domain is credible with the implementation of the survey in Vietnam. However, when analyzed, only Autonomy had Cronbach's Alpha reliability value is 0.680, indicating this domain is not high appropriate to examine the quality of life of elderly people in Vietnam. On the other hand, Cronbach's Alpha value of Autonomy is too isolated (less than 0.020) with consistent high standards so it will be accepted without adjustment. On the other hand, when comparing the Cronbach's Alpha reliability index of domains with other researches around the world, we see that only AUT and DAD have lower reliability when compared to the study of China, the remaining aspects still higher [87]. With the other study, Cronbach's alpha values in this study have achieved higher value when compared with other studies [86-90, 103, 105-109].

Table 6.2. *Summary Cronbach's Alpha Coefficients for domains*

	Cronbach's Alpha (Domains)		**Cronbach's Alpha (Domains)**
Vietnam	0.68 - 0.90	Mexico	0.70 - 0.90
Portugal	0.71 - 0.88	China	0.71 - 0.84
Brazil	0.71 - 0.88	Taiwan	0.72 - 0.95
Norway	> 0.7	Germany	0.75 - 0.85
Turkey	0.68 - 0.88	Spain	0.65 - 0.88

Test-retest reliability: intra-class correlations coefficients (ICC)

This method is used to check the stability of the survey questions. With this method, if the ICC coefficient achieved on 0.70 and above, it is mean the questionnaire gets achieving high reliability.

ICC coefficient of the entire questionnaire reached 0.884, whereas in each domain, ICC coefficients ranged from 0.664 to 0.893. Similarly with Cronbach's Alpha Coefficient, Autonomy also offers reliability coefficient value is the lowest in 0.664. However, this is fairly high value and acceptable. When we comparison ICC index between this research and China's research [87], the ICC of this research is

higher than other. By contrast, the ICC index of Autonomy in this research is low. It need to be impoved.

6.1.2. Validity

Discriminant validity

For the indicators analyzed above, if $\chi 2$ / df <3 as well, $\chi 2$ / df <5 is sometimes acceptable. In this study, $\chi 2$ = 683,832 and $\chi 2$ / df = 2.70. Such results are achieved good indicator. $\chi 2$ / df Index achieve much better values in the study of WHO's research center. Besides, the CFI index in this study achieved a value of 0.890. This is a positive result and comparable to other studies in the world and it is higher than in studies in Turkey. RMSEA index only gained acceptable result. It's still much higher studies in the world [103]. Indicators NFI, GFI achieve satisfactory level when compared with researches in Brazil and China [87, 105].

Construct validity

With the **table 5.10.**, we can see that the question has a high interaction of the questions in the same group as compared with the interaction of the question does not belong group. The highly interactive respectively which are expressed through the Pearson coefficient. With their group, the question will have different coefficients higher than the others; this is usually the Pearson coefficient reaches values from 0.70 upwards. Therefore, the match between the questions and the domains in the questionnaire has good interaction with each other.

Pearson coefficients also show the trend line with Cronbach's alpha reliability coefficient and ICC, which is Sensory Ability group with the highest reliability and Autonomy have the lowest reliability. Sensory Ability is the highest group of Pearson correlation coefficient (0.827 – 0.900), while Autonomy has the lowest correlation coefficient with the value of about 0.698 to 0.724 is achieved.

With the results obtained showed that when applying the WHOQOL-OLD module, questions with high conformity when Pearson correlation coefficient of the question with the domains and questions with a total score for the QOL significantly higher value than the studies were conducted in China and Turkey [87, 108].

Convergent validity

As the result in table above can be seen that the coefficient of KMO reached 0.856, this is a high level of conformity of the elements in the questionnaire survey. With Bartlett's test, chi-square gets 4.222e3, 376 degrees of freedom, the value of p = 0.000, i.e. it has a statistically significant at a confidence level is 99.9%. This is proof for confirming the contents of the questionnaire consistent with the reality in Vietnam.

On the other hand, verify the interaction, the appropriateness of the question by conducting analyzes Rotated Component Matrix, the results also show the validity of the questionnaire in the reality of Vietnam. This Rotated Component Matrix is a similar form of simple Pearson correlation analysis was performed as above. If Pearson correlation as for instance the interaction of groups of questions with the same domain of the group questions, then Rotated Component Matrix, the question is only the separation and separate acquisitions into a group. The question has been a secluded and isolated in groups clearly. Questions same group will allocate contiguous with the corresponding values.

The above results were compared to studies conducted in Mexico. For the study in Mexico, KMO index gained no great disparity (Mexico – 0.85; this research – 0.86). Bartlett's index tested with good results are achieved when the level of high statistical significance. However, when analyzing Rotated Component Matrix, study of Mexico has no interaction and complete separation of the group when a question in AUT group does not lie in the same group with the remaining questions [107].

6.2. Descriptive Statistics

6.2.1. Quality of life index

Elderly people living in Ho Chi Minh City get high quality of life, with a total score was 97.56 ± 9.75. Besides, on the domains, elderly people living in this region feel the optimism in their way of thinking. These domains are achieving high value: SAB (15.88 ± 3.25), DAD (16.41 ± 2.75), AUT (16.12 ± 1.90), PPF (16.16 ± 2.33), SOP (16.29 ± 2.29) and INT (16.70 ± 2.17).

With the results above, it can be shown that the quality of life of elderly people in the city of Ho Chi Minh is higher when it was compared with other studies in the world with the same scale. In the WHO study, the total quality of life score

ranges between 86-90 points only. And in another study, the total point value also achieved below 92 points, the special is only one study in Mexico result in a total quality of life score was 94.86 ± 13.68. [86-88, 90, 103-105, 107, 108].

One of the indicators of quality of life is considered it is more correlated with each of these domains and the overall quality of life score was mentioned in the **table 5.15** above. This correlation is quite good when its results are compared with the research center at the WHO [103]. In this research, the total score of DAD group equal 16.41 ± 2.75, it is closely with the results in many WHO's center and higher than some studies of Brazil, Mexico and Turkey [88, 105, 107, 108].

Table 6.3. *Comparision the total score of WHOQOL-OLD*

	QOL Total score		**QOL Total score**
Vietnam	97.56 ± 9.75	Mexico	94.86 ± 13.68
Brazil	67.40 ± 13.53	China	86.16 ± 10.80
Norway	91.13 ± 11.20	Poland	74.19 ± 13.21
Turkey	75.79 ± 11.86		

6.2.2. Relationship between QOL and demographic factors

The study was conducted in Ho Chi Minh City with 442 elderly participants. The average life expectancy age 69.29 ± 6.86 with the ratio between men and women was 52.26 percent and 47.74 percent. The average age of the elderly involved in this study are relatively lower compared to other studies carried out at the center of WHO at the rate of men and women did not have a significant gap. This age is equivalent with the studies at Bath (England) - 69.65 ± 7.10; Tokyo (Japan) – 69.39 ± 5.70 [103].

Age is a significant factor in 99.9% (p-value = 0.000) and it had a major impact, direct impact to quality of life of elderly living in Ho Chi Minh city. The respondents in the age group from 60-69 years of age said that age will affect their quality of life higher than those in the remaining age groups through the "mean" index higher than their the remaining age groups in every aspect of quality of life and overall quality of life. Age is also one of the factors affecting the quality of life of the elderly. When age change, people also change their perceptions about the factors affecting their quality of life.

About religion, Vietnam at present there is no religion that is considered the official religion of the country as some other countries. Therefore, elderly people living here have a different religion and many of those surveyed did not join any religion.

About education level, Vietnam is a country with a tradition of academic excellence; however, older people surveyed have a year from 1955 onwards. During this period, Vietnam is still in the stage of the war of aggression against the country, the economic conditions and learning conditions become inadequate, so almost three-quarters of those surveyed qualified relatively low education.

About income, the average monthly income of a household currently have elderly family is relatively low, almost 7 million VND (around 350 USD per month). This income level is relatively low compared with some other countries in the ASEAN region. However, older people who participated in the survey said that if they save, it was still enough income to monthly expenses of the family.

About health status, in this research, we have 73.07 percent of elderly had healthy and 83.94 percent of elderly had at least 1 diseases. This percentage is same same with other studies around the world [103].

About sensory ability, older people surveyed in this study said that they faced a decline of sensory functions such as listening, visioning, walking and memory. The decline of this function also affects their lives but it is not too big problem. Although faced with such difficulties, but most of older people do not need help from relatives for daily activities such as: bathing, dressing, toileting, transferring, continence and feeding.

About marital status, older people in need of care, community integration, the desire to live well, raise awareness and demand for entertainment ... If the elderly are not guaranteed these needs will lead to psychological downfall. Elderly retirees, particularly those who live alone will produce psychological loneliness, even feel abandoned. Old people alone without children or not living with the children, or you lose life easier born lonely sentiment than specific children live together, while your partner or other people in general. Besides, the elderly, especially for the elderly without care descendants often have psychological anxiety, pessimism by that time he

was close to death. The fact also had many cases of older people die without anyone knowing anything.

Aside from psychological problems, elderly people living alone will also encounter difficulties in personal hygiene. When advanced age, declining health, they will accrue afraid, all the children of this habit of neglect, little contact with society should not need the toilet, dressing. Main temporary lifestyle has a direct influence on the quality of life and health of the elderly.

6.3. Regression Analysis

Based on multivariate regression equation above, the quality of life for elderly people living in Ho Chi Minh City depend on some elements were: age, marital status, ln income, income enough, rural and act.

Age: The higher age of elderly are, the lower quality of life they get. The cause can be explained as follows: The cause can be explained as follows: When elderly people retire, they retain the ability to work, health and ability to integrate into the community quite well. Therefore, they have confidence in themselves and have a more optimistic view, lead to their quality of life higher than others. As more elderly, the elderly faced a decline in the senses and the ability to perform daily activities. Therefore, older people will become more and more pessimistic, affecting their quality of life.

Marital status: The elderly people living with relationship have better quality of life than others. Older people in need of care, community integration, the desire to live well, raise awareness and demand for entertainment. If the elderly are not guaranteed these needs will lead to psychological downfall. When elderly people retirees, particularly those who live alone will feel loneliness, even feel abandoned. The elderly people live alone, they lose their life easier than they live together with their spouse/partner or other people in general. Besides, the elderly, especially for the elderly without care descendants often have psychological anxiety, pessimism by that time he was close to death. The fact also had many cases of elderly people bereavement without anyone knowing anything.

Income: The elderly people with high incomes will have a better quality of life for low-income people. For elderly people with high income, they spend easily without having to think too much. While those with lower incomes, they have to

worry more about their expenses. Similarly, those who have sufficient income to spend, they will have a higher quality of life for others. These elderly people are not worried and looking to earn enough money to spend on their activities.

Rural: The elderly people living in rural area have a higher quality of life for older people living in urban area. Those living in urban areas are often faced with the noise, pollution and cramped living area.

In general, the quality of life of elderly people in Ho Chi Minh City depending on age, marital status, income status and the place where they live. Based on multivariate regression equation, The elderly people had lower age, living in a relationship in the rural area have a best quality of life.

RECOMMENDATIONS

6.4. For this research

This study is only done in a short time in Ho Chi Minh City, so it can not overarching out for the quality of life of elderly people living in the Southern Vietnam.

Results and Discussion sections encountered some problems when the study was conducted only on a relatively limited number of participants. Some items are just one observation, therefore the results are not assessed correctly.

This questionnaire is relatively simple, can not fully express the psychological aspects of the elderly in the evaluation of the quality of life of the elderly.

6.5. For further research

In this research, the scope of research is Southern Vietnam, so this study need to be expand the scaling throughout whole Vietnam. For each region, the questionnaire must be evaluate reliablity and validity again. From that, creating the Vietnamese version of WHOQOL-OLD

This research can be expanded in comparison the quality of life of elderly living in urban and rural area in Vietnam through Vietnamese version of WHOQOL-OLD.

This WHOQOL-OLD module should be developed and combine with other questions from WHOQOL instruments to take an indepth evaluation the quality of life of elderly people with 1 or more diseases.

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APPENDIX

APPENDIX 1: QUESTIONNAIRE

THE APPLICATION WHOQOL-OLD MODULE VERSION: A PRELIMINARY STUDY OF QUALITY OF LIFE OF ELDERLY PEOPLE IN SOUTHERN VIETNAM

During the past decades, ageing population has become a greatest challenge in worldwide. In the middle of 20th century, older people over 65 years old and above is more and more increasing with 4 percent of population in developing countries. Nowadays, health-related quality of life (HRQOL) is great of important role to assess quality of life of the elderly people via various instruments including WHOQOL-100 and WHOQOL-BREF. This research is based on WHOQOL-OLD Module, which has developed by The WHO Quality of Life Group, and is evaluating the Vietnamese version using a modern psychometric approach and testing potential shifts to the instruments.

By answering the questions on this survey, you can contribute your opinions and impressions regarding your environmental conditions. This survey has a series of questions that relate how you feel about your quality of life, health, and other areas of your life. Please read each statement carefully and decide how much you agree or disagree with it. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks. There are two parts in this survey including the personal information and assessment of quality of life in elderly people.

Please use the following scale of answers, or choose the response on the following content according to the level that best describes your answer:

Scale	**Interpretation**
1	Very dissatisfied
2	Dissatisfied
3	Neither satisfied nor dissatisfied
4	Satisfied
5	Very satisfied

Thank you for taking the time and effort to contribute your views!

ID number: ☐☐/☐☐☐ Interviewer code: ☐☐
Date: ☐☐/☐☐/☐☐(DD/MM/YY) Signature of interviewer:

Please indicate your answers by filling in the circles like this ☑

PART 1. DEMOGRAPHIC CHARACTERISTICS

No.	Questions	Answers
01	*What is your date of birth?*	__/__ __/__ __/__/__/__ (DD / MM / YYYY)
02	*What is your gender?*	☐[1] Male ☐[2] Female
03	*What is your religion?*	☐[1] Buddhist ☐[2] Christian ☐[3] Protestant ☐[4] None at all ☐[5] Others: …….
04	*What is the highest education you awarded?*	☐[1]Illiterate ☐[2]Elementary/ Middle school ☐[3]High school ☐[4]Over high school (College, Bachelor, Post-graduate…)
05	*What is your marital status?*	☐[1] Currently Single (never married / widowed / divorced) ☐[2]Currently in a relationship (Living with partner / spouse)
06	*How much do your family earn per month?*	……. (million VND)
07	*Do you have enough money for your expense?*	☐[1]Yes ☐[2]No
08	*What is your perception on health status when comparing to others at the same age?*	☐[1]Very bad ☐[2]Bad ☐[3]Moderate ☐[4]Good ☐[5]Very good
09	*Are you currently ill?*	☐[1]Yes ☐[2]No
10	*If something is wrong with your health what do you think it is?*	…….. illness / problem

11	*Do you have any difficulty with these sensory functioning?*	***Sensory***	***Not difficult***[1]	***Difficult***[2]	***Very difficult***[3]
		Visioning	☐	☐	☐
		Listening	☐	☐	☐
		Walking	☐	☐	☐
		Memory	☐	☐	☐

12	*Activities of daily livings*	Bathing[1]	Dressing[2]	Toileting[3]	Transferring[4]	Continence[5]	Feeding[6]
	… without or with some help from others	☐	☐	☐	☐	☐	☐
	…. with help of others	☐	☐	☐	☐	☐	☐

PART 2.QUALITY OF LIFE QUESTIONNAIRES

No.	Description	Circle your answer				
1. SENSORY ABILITIES						
12	How do you feel when the impairments to senses affect your daily life?	1	2	3	4	5
13	How do feel when the rate sensory functioning affect your daily life?	1	2	3	4	5
14	How do you feel when you loss of sensory abilities affect participation in activities?	1	2	3	4	5
15	How do you feel when you face the problems with sensory functioning affect ability to interact?	1	2	3	4	5
2. DEATH AND DYING						
16	Do you concern about the way you will die?	1	2	3	4	5
17	Do you afraid of not being able to control death?	1	2	3	4	5
18	Do you scare of dying?	1	2	3	4	5
19	Do you fear pain before death?	1	2	3	4	5
3. PAST, PRESENT AND FUTURE ACTIVITIES						
20	Do you feel happy with things to look forward to?	1	2	3	4	5
21	Do you feel satisfied with opportunities to continue achieving?	1	2	3	4	5
22	How do you feel when you received the recognition you deserve in life?	1	2	3	4	5
23	Do you feel satisfied with what you're achieved in life?	1	2	3	4	5
4. SOCIAL PARTICIPATION						
24	Do you feel satisfied with the way you use your time?	1	2	3	4	5
25	Do you feel satisfied with level of activity?	1	2	3	4	5
26	How do you feel when you have enough to do each day?	1	2	3	4	5
27	Do you feel satisfied with opportunity to participate in community?	1	2	3	4	5
5. AUTONOMY						
28	Do you feel freedom to make own decisions?	1	2	3	4	5
29	How do you feel in control of your future?	1	2	3	4	5
30	How do you feel when you are able to do things you'd like?	1	2	3	4	5
31	People around you are respectful of your freedom	1	2	3	4	5
6. INTIMACY						
32	How do you feel a sense of companionship in life?	1	2	3	4	5
33	How do you feel about experience love in your life?	1	2	3	4	5
34	How do you feel when you have opportunities to love?	1	2	3	4	5
35	How do you feel when you have opportunities to be loved?	1	2	3	4	5

Thank you for your co-operation!

APPENDIX 2: USER AGREEMENT

User Agreement for "WHOQOL-100" and/or WHOQOL-BREF and related materials

This agreement is between the World Health Organization ("WHO") and Mr. VO XUAN NAM. WHO hereby grants the User a nonexclusive, royalty-free license to use the World Health Organization Quality of Life Questionnaire and/or related materials (hereafter referred to as "WHOQOL-100" or "WHOQOL-BREF") in User's study outlined below. The term of this User Agreement shall be for a period of 1 year, commencing on (date) 7th March 2015.

The approved study for this User Agreement is:

Study Title	The application of WHOQOL-OLD Module to evaluate the quality of life of elderly in Southern of Vietnam
Principal Investigator	Mr. VO XUAN NAM
Sample characteristics	Elderly people living in the Southern of Vietnam (60 years old and above)
Sample size	250 - 300
Treatment Intervention	None
Total number of assessments	All categories
Assessment time points	March, 2015 – July 2015
"WHOQOL-100" or WHOQOL-BREF version – *Please specify language version(s) you would like to receive.*	WHOQOL – OLD Module Full original questionnaire: English, Vietnamese
Other measures	None

This User Agreement is based upon the following conditions:

1. User shall not modify, abridge, condense, translate, adapt, recast or transform the WHOQOL-100 or BREF in any manner or form, including but not limited to any minor or significant change in wording or organization, or administration procedures, of the WHOQOL-100 or BREF. If User thinks that changes are necessary for its work, or if translation is necessary, User must obtain written approval from WHO in advance of making such changes.

2. User shall not reproduce WHOQOL-100 or BREF, except for the limited purpose of generating sufficient copies for its own uses and shall in no event distribute copies of the WHOQOL-100 or BREF to third parties by sale, rental, lease, lending, or any other means. In addition, User agrees that it will not use the WHOQOL-100 or BREF for any purpose other than conducting studies as specified above, unless agreed in writing by WHO. In any event, the WHOQOL-100 or BREF should not be used for research or clinical purposes without prior written authorization from WHO.

3. User agrees to provide WHO with an annual update regarding activities related to the WHOQOL-100 or BREF.

4. User agrees to provide WHO with a complete copy of User's raw data and data code books, including the WHOQOL-100 or BREF and any other instruments used in the study. This data set must be forwarded to WHO upon the conclusion of User's work. While User remains the owner of the data collected in User's studies, these data may be used in WHO analyses for further examining the psychometric properties of the WHOQOL-100 or BREF. WHO asserts the right to present and publish these results, with due credit to the User as the primary investigator, as part of the overall WHOQOL-100 or BREF development strategy.

5. WHO shall be responsible for preparing and publishing the overall WHOQOL-100 or BREF results under WHO copyright, including:

a. the overall strategy, administrative set-up and design of the study including the instruments employed;

b. common methods used by two or more Users;

c. the data reported from two or more Users ;

d. the comparisons made between the data reported from the Users;

e. the overall findings and conclusions.

6. User shall be responsible for publications concerning information developed exclusively by User and methods employed only by User. Publications describing results obtained by User will be published in User's name and shall include an acknowledgement of WHO. User agrees to send to WHO a copy of each such paper prior to its submission for publication.

7. WHO may terminate this User Agreement at any time, in any event. Should WHO terminate this User Agreement, User shall immediately cease all use of the WHOQOL100 or BREF and destroy or return all copies of the WHOQOL-100 or BREF. In the event of such termination, all other collateral materials shall be destroyed and no copy thereof shall be retained by User. Notwithstanding the return or destruction of the WHOQOL-100 or BREF and its collateral materials, User will continue to be bound by the terms of this User Agreement.

8. It is understood that this User Agreement does not create any employer/employee relationship. User and its affiliates are not entitled to describe themselves as staff members of WHO. User shall be solely responsible for the manner in which work on the project is carried out and accordingly shall assume full liability for any damage arising therefrom. No liability shall attach to WHO, its advisers, agents or employees.

Please confirm your agreement with the foregoing by signing and returning one copy of this letter to WHO, whereupon this letter agreement shall become a binding agreement between User and WHO.

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WORK AND EDUCATION EXPERIENCES

- July 2015: Getting the Outstanding Research Award, the 5th National and International Graduate Study Conference 2015.

- August 2014 – July 2015: Studying in Master of Science of Health Economics and Health Care Management at Chulalongkorn University, Thailand.

- November 2012 - now: Researcher at Department of Pharmacy Administration, Faculty of Pharmacy, University of Medicine and Pharmacy at Ho Chi Minh City.

- January 2012 – July 2014: Working as a Medical sales representative at Eagle USA Vietnam Company Limited.

- November 2012 – July 2014: Studying in Master of Business Administration (MBA) at Open University of Malaysia with GPA 3.64/4.0 marks.