

Preventive Health Care and Health Care Services Utilization of
Vietnamese Older Persons: Results from National Household
Living Standards Survey 2018



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จาก การที่ หลาย ๆ ประเทศ เข้า สู่ สังคม สูง วัย อย่าง รวด เร็ว การพัฒนาสุขภาพของผู้สูงอายุและการลดภาระโรคจึงเป็นเป้าหมายที่สำคัญ อย่างไรก็ตาม ประเทศกำลังพัฒนาจำนวนมากยังขาดนโยบายที่มีประสิทธิภาพในด้านการดูแลสุขภาพเชิงป้องกันและการเข้ารับบริการด้านสุขภาพของผู้สูงอายุ งานวิจัยนี้ วัตถุประสงค์ ดังนี้ : (1) เพื่อศึกษาสถานะสุขภาพจากรายงานการบาดเจ็บรุนแรงและความต้องการบริการด้านสุขภาพของผู้สูงอายุชาวเวียดนาม (2) เพื่อศึกษาปัจจัยที่เกี่ยวข้องกับการใช้บริการการตรวจสุขภาพของผู้สูงอายุชาวเวียดนาม (3) เพื่อสำรวจความแตกต่างของการเข้ารับบริการด้านสุขภาพ จำแนกตามความต้องการการดูแลรักษาที่แตกต่างกันของผู้สูงอายุชาวเวียดนาม งานวิจัยนี้ใช้ข้อมูลจากแบบสำรวจมาตรฐานการครองชีพในครัวเรือนของเวียดนาม ปีค.ศ. 2018 การศึกษา นี้ มี กลุ่ม ตัวอย่าง เป็น ผู้ สูง อายุ 5,037 คน โดย มี ค่า ตอบ 6,030 รายการเกี่ยวกับการไปสถานพยาบาล การศึกษาที่ใช้การถดถอยโลจิสติกพหุนามเพื่อวิเคราะห์ปัจจัยจุดใจ ปัจจัยอื่น และปัจจัยความต้องการทางการแพทย์ที่เกี่ยวข้องกับการใช้บริการด้านสุขภาพ ผลการศึกษาพบว่า 15.9% ของผู้ตอบแบบสำรวจที่เป็นผู้สูงอายุมีอาการบาดเจ็บรุนแรงอย่างน้อยหนึ่งครั้ง สัดส่วนของผู้สูงอายุที่ไม่ได้ใช้บริการสุขภาพใดๆ ผู้สูงอายุที่ไปรับการตรวจสุขภาพ และผู้สูงอายุที่ไปรับการรักษาพยาบาล คิดเป็นร้อยละ 29.7, 17.0 และ 53.3 ตามลำดับ ผลการศึกษาพบว่า อายุ เพศหญิง การศึกษา และการมีประกันสุขภาพมีความสัมพันธ์เชิงบวกกับโอกาสในการใช้บริการตรวจสุขภาพ นอกจากนี้ ผู้สูงอายุที่เจ็บป่วยไม่รุนแรงมีแนวโน้มใช้บริการสถานพยาบาลเอกชนมากขึ้น ส่วนผู้สูงอายุที่ป่วยหนักมักไปใช้บริการโรงพยาบาลอำเภอและโรงพยาบาลประจำจังหวัด/สวนกลาง จากงานวิจัยนี้สรุปได้ว่า ภาวะสุขภาพของผู้สูงอายุเป็นสิ่งที่ควรให้ความสำคัญ แรงจูงใจหลักของผู้สูงอายุที่ต้องการรับบริการด้านสุขภาพคือการรักษาพยาบาล ในขณะที่สัดส่วนของผู้สูงอายุที่มีการดูแลสุขภาพเชิงป้องกันค่อนข้างต่ำ อุปสรรคสำคัญมาจากลักษณะทางประชากรที่แตกต่างกัน เช่น อายุ การศึกษา เชื้อชาติ และการไม่มีประกันสุขภาพ นโยบายเพิ่มความครอบคลุมของการประกันสุขภาพและการสร้างความเข้าใจเกี่ยวกับความสำคัญของการตรวจสุขภาพเป็นสิ่งจำเป็น ผลการศึกษายังมีนัยสำหรับโปรแกรมเป้าหมายที่มุ่งเน้นไปที่บางกลุ่ม เช่น ผู้สูงอายุกลุ่มที่อายุ 60-69 ปี และชนกลุ่มน้อย นอกจากนี้ นโยบายจำเป็นต้องมุ่งเน้นไปที่การปฏิรูปเชิงนวัตกรรมไปสู่โครงสร้างที่หลากหลายของสถานพยาบาล โดยเฉพาะอย่างยิ่งการจัดระบบบริการและการปรับปรุงคุณภาพการบริการที่ศูนย์สุขภาพชุมชน

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As many countries are aging rapidly, improving older persons' health and reducing the burden of disease are important goals. However, many developing countries still lack effective policies in the areas of preventive health care and health services utilization of older persons. This study aims: (1) to determine the health status by severe injury report and health care service needs of Vietnamese older persons, (2) to investigate the factors associated with the use of health check-up services of Vietnamese older persons, and (3) to investigate the differences in health care services utilization between different medical needs of Vietnamese older persons. Using data from Vietnam Household Living Standards Survey (VHLSS) 2018, this study has a sample of 5037 older persons with 6030 responses regarding healthcare facility visits. The study employs multinomial logistic regressions to analyze the predisposing, enabling, and medical need factors associated with health care services utilization. The results show that 15.9% of elderly respondents had at least one severe injury. The percentages reporting no use of any services, use for health check-ups, and use for medical treatment were 29.7%, 17.0%, and 53.3%, respectively. The results show that age, being female, education, and having health insurance were positively associated with the likelihood of using health check-up services as compared to not using any services. In contrast, being from the minority group and co-residence with family members were negatively associated with the likelihood of using health check-up services. Besides, older persons with non-severe illness tended to use more private healthcare services while those with severe illness were more likely to use district hospitals and provincial/central hospitals. To conclude, the health status of older persons needs to be concerned. The main motivation for the elderly to seek health care services was medical treatment while the proportion of older persons who used preventive health care was quite low. The main barriers came from differences in demographic characteristics such as age, education, ethnicity and not having health insurance. Policies to increase coverage of health insurance, and to improve understanding of the importance of health check-ups are necessary. The results also have implications for targeted programs that focus on certain groups such as the youngest-old and the minority group. Besides, policies need to focus on an innovative reform toward a diversified structure of health care facilities, especially reorganizing services and improving service quality at commune health centers.

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CHAPTER 1. INTRODUCTION

1.1 Global population aging trends

Population aging has become a key challenge of the world, that is not unique to any country. The world population continues to grow older rapidly when fertility rates have fallen to low and very low levels in most regions in the world and people tend to live longer (He et al., 2016). According to data from the United Nations, the older population (aged 65 and over) accounted for about 9.3 percent of the total world population in 2020. Very quickly, by 2050, this number is projected to be 15.9 percent. Africa is the only region that is projected to have an older population comprising less than 7 percent of their total population, however, the growth rate is also significant (3.5 percent and 5.7 percent in 2020 and 2050, respectively) (United Nations & Social Affairs, 2019a).

Each region of the world has its own phase of demographic transition so one of the features of global population aging is its uneven speed across world regions and development levels. Europe, North America, and most of the developed countries in the world have started the transition many decades ago. In detail, for Europe, the point that population aging started was just after World War II, when mortality replaces fertility (M. Murphy, 2017). The situation of North America as represented by the US is similar to Europe, the country has changed rapidly both in terms of the number and proportion of the population aged 65 and over from very early on. Between 1950 and 1980 the population age 65 and older more than doubled, from 12.3 million in 1950 to 25.5 million in 1980 (Taeuber, 1983). During this 30-year period, the percentage of the older population increased by 108 percent while the population under age 65 increased by only 62 percent (Gilford, 1988).

Asia and Latin America follow developed countries in aging history but they are rapidly progressing through the demographic transition and population aging (Balachandran et al., 2019). Asia has the highest number of older persons in absolute terms and in terms of the proportion of the total elderly population in the world (slightly more than half). By 2050, almost two-thirds of the world's older persons will live in Asia (He et al., 2016). Currently, the process of aging has started very clearly

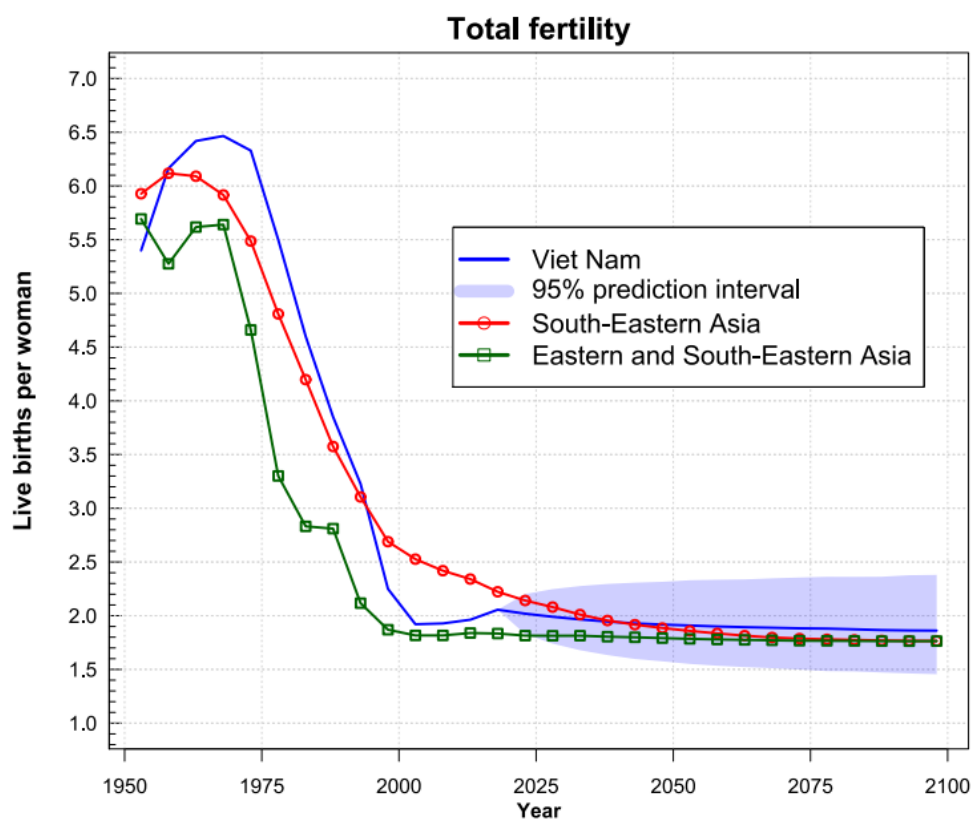
in the countries with the advanced developed economy of East Asia and has expanded to the Southeast Asian countries, which have had many successes in increasing life expectancy and reducing fertility rate. This trend can be anticipated even in South Asia countries although the number of children and fertility rate remains high at present (Yoon & Hendricks, 2018).

1.2 The situation of aging in Vietnam

The proportion of Vietnamese older persons is rapidly growing (Danh, 2021). Like most countries in the world, the aging of Vietnam started with the declining in the fertility rate, and the improvement in many aspects of life for citizens, leading to an increase in life expectancy.

- Fertility rate

Figure 1. Total fertility rate of Vietnam, South-Eastern Asia, Eastern and South-Eastern Asia from 1950 to 2019 and future predictions.



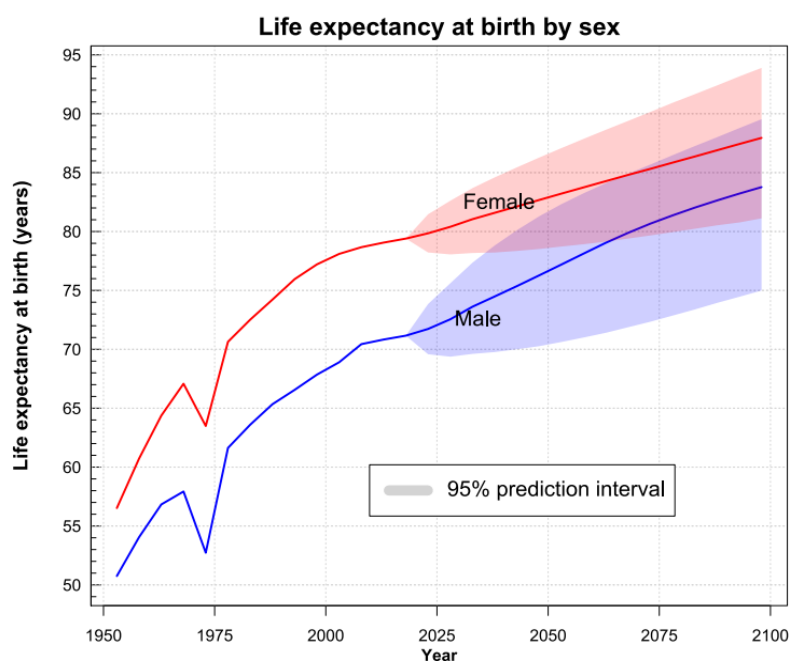
Source: (United Nations & Social Affairs, 2019b)

Vietnam witnessed a marked decrease in the fertility rate during the past 50 years, from the 1960s to 2010. In the context of the war against the United States, Vietnam realized that population growth was too rapid. Government policy to control rapid population growth was first articulated in Vietnam in the early 1960s (from 1961-1963) (White, 1988). The main subjects are women of reproductive age with many children, the first cadres, workers, officials, and soldiers; then expanded to the general population. And The Vietnamese National Family Planning Program is a multisectoral effort involving a broad range of ministries and mass organizations that focus on educating, promoting, and encouraging couples to use family planning (Allman et al., 1991). It was a difficult period when the country still faced many difficulties, but the Population and Family Planning had some achievements: the rate of natural population growth was 3.8% in 1960 and reduced to 2.5% in 1975. The average number of children per woman in reproductive age decreased from 6.3 children (1961) to 5.3 children (1975). Initial success is the foundation for a long process of policy change and adjustment according to the country's context (at many stages, the policy was implemented with rewards and punishment regimes).

After 40 years, Vietnam entered the 21st century as it approached replacement fertility. This period ended the period of enforcement and shifted to voluntary encouragement of people in family planning. In 2003, Vietnam achieved the target replacement fertility rate 10 years earlier than the set target. Vietnam officially entered the period of golden population structure in 2007 and achieved the fertility reduction target in 2009. The average number of children per woman of reproductive age decreased from 2.3 in 2000 to 2.0 in 2010. Up to now, Population and Family planning with the policy "Each family should have only 2 children" is one of the most successful population policies of Vietnam (B. N. Pham, 2014).

- Life expectancy, the share of older persons, dependency ratio, and other issues.

Figure 2. Life expectancy at birth by sex of Vietnam from 1950 to 2019 and future predictions.



Source: (United Nations & Social Affairs, 2019b)

After the Vietnam War and the subsequent country reunification on 30th April 1975, the average life expectancy has not stopped increasing since 1975 until now. It is a partial result of the economic development (Read et al., 2000). Besides, like other countries in the region such as Laos, and Cambodia, the study of Nguyen found that in Vietnam, life expectancy has a positive relationship with demographic characteristics such as population aged 65 and older, gender, school enrollment, and health care resources (A. Nguyen, 2022). Using an abridged life table to estimate cohort life expectancies at old age, the authors showed that life expectancies at age 60 have increased, even in the rural area of Vietnam (Hoi et al., 2009).

In the field of economics, when the "dependency ratio" is down to 50 or less, it means that 100 working-age people have to "burden" fewer than 50 dependents, or in other words, every two working-age people have no more than one dependent and this is the "gold" population structure (Cu & Nhung, 2013). According to the survey on

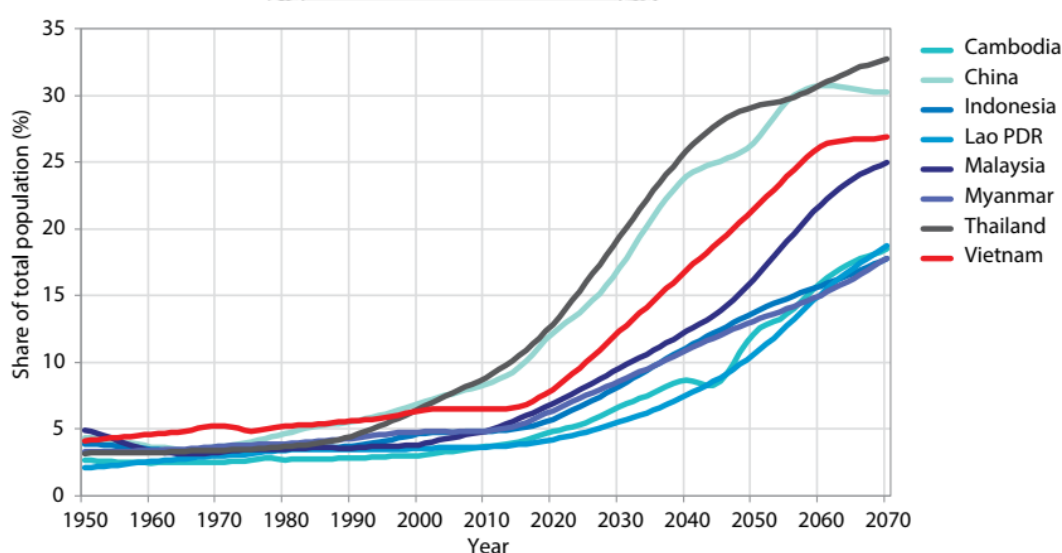
population changes, labor sources, and family planning in Vietnam, in 2006, the "dependency ratio" is only 49.9. It means that with success in reducing the fertility rate, reducing the mortality rate (Merli, 1998), and increasing life expectancy, in 2007, Vietnam officially entered the period of the golden population structure. Opportunities due to the "gold" structure are plenty of labor sources, and few dependents leading to high savings which can promote economic growth as well as the quality of life. However, Vietnam only has a short time to take advantage of the golden population structure before becoming an aging society.

Table 1. *The period of the "golden population" in Asia*

Country	Years	Duration
Singapore	1980 - 2020	40 years
Thailand	1990 - 2025	35 years
Indonesia	2010 - 2040	30 years
Malaysia	2015 - 2045	30 years
Philippines	2030 - 2050	20 years
Vietnam	2010 - 2040	30 years

Source: (Ngoc et al., 2016)

Figure 3. *Share of Population Age 65 or Older, Vietnam versus Comparator Countries, 1950–2070*

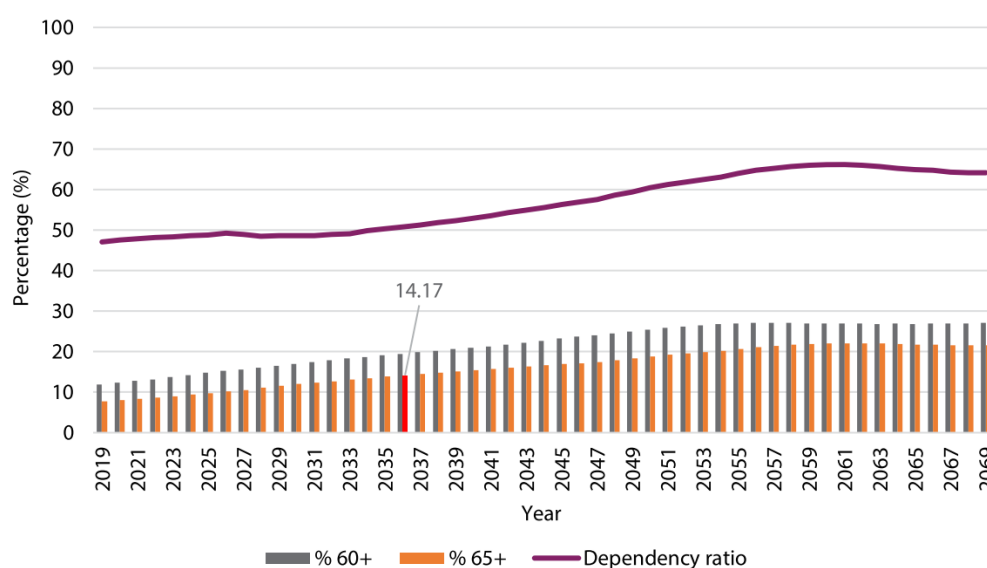


Source: (United Nations Department of Economic and Social Affairs, 2017)

In the period 2009-2019, the elderly population had increased from 7.45 million to 11.41 million, equivalent to 8.68% and 11.86% of total population, respectively. The

increase of the elderly population accounts for nearly 40% of total population increase (UNFPA Viet Nam & Duc, 2021). According to the government forecasts, Vietnam will become a country with an aging population by 2038 with the percentage of people aged 60 and overreaching over 20%. By 2049, the proportion of the elderly will account for about 25% of the population, which means in 4 people, we will have an elderly (Population Family Planning of Ministry of Health, 2019).

Figure 4. Projections for proportion of older population aged 60+, 65+ and dependency ratio, 2019–2069.



Source: (UNFPA Viet Nam & Duc, 2021)

The proportion of elderly people as well as the dependency ratio tends to increase over time. It not only makes a burden on people of working age, but also creates challenges in terms of population policies and health care systems to respond to aging context.

1.3 The consequences of population aging on aspects of life of older persons.

Aging is the lifelong process of growing older at the cellular, organ, or whole body level throughout the life span (Timiras, 2002). Most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person, but like many westernized concepts, this does not adapt well to the situation in many other countries. While this definition is somewhat arbitrary, it is many times associated with the age at which one can begin to receive pension benefits. At the

moment, there is no United Nations standard numerical criterion, but the UN agreed cutoff is 60+ years to refer to the older population (Kowal & Dowd, 2001). Throughout most of the developed and developing countries on the world, one of the most daunting issues is dealing with the challenges raised by the population aging (Council & Population, 2012). All rapidly aging countries face similar risks, it is undeniable. The consequences and challenges posed by aging societies are enormous. Studies from several decades ago to the present show that the aging population has many social, economic, and public health consequences (Hien, 2014; Kaplan & Inguanzo, 2017; Naja et al., 2017; Restrepo & Rozental, 1994). In general, it is very difficult to separate the consequences of population aging on a single dimension. They affect each other and create combined challenges.

Firstly, aging has important implications on the organization and delivery of health care, caregiver availability and constraints, society, and policies (Naja et al., 2017). In the health services sector, the increasing proportion of elderly citizens is leading to several other problems. The most obvious is the increasing medical needs of people in their 70s and 80s (Getzen, 1992). It places many closely related questions regarding the likely impact of aging on health care costs or care for the elderly in general (Lutz & KC, 2010). There are many reasons the care needs of older persons are different and more complex than younger adults. The main reasons include: older adults are commonly affected by multiple medical conditions that vary in severity; the cumulative effect of these combined medical conditions is usually more extreme than any one individual disease; greater risk of adverse drug reactions and illness complications; minor medical conditions may have a greater psychological impact on the mental health of older adults (Kaplan & Inguanzo, 2017). As individuals age, they are at increasing risk of functional impairments and disability (Lee et al., 2010). Noncommunicable chronic illness associated with the aging process—such as arthritis, cardiovascular disease, stroke, macular degeneration, cancer, diabetes, and Alzheimer's disease—are expected to become the leading causes of death and disability among older adults all over the world (Kaplan & Inguanzo, 2017).

Ensuring good health for all residents regardless of their geographical locations and socioeconomic status is an important goal among 17 Sustainable Development Goals

of Vietnam (Morton et al., 2017). However, Vietnam still lacks effective policies in the areas of preventive health care as well as health services utilization of older persons. It is necessary to expand equal access to quality health services with a focus on preventive health care (World Bank, 2019). Besides, the issue of organization and delivery of health care is more important than ever, especially in the current rapidly aging context. Firstly, the increasing aging population leads to the significant increase in the need and demand of health care services for older persons (T. T. Nguyen & Trevisan, 2020). The unmet need for health care services is the first challenge that needs to be solved. Unmet need for eldercare is a risk factor for the accelerated decline of functional capacity and adverse health outcomes, including death, among older adults (Adetunji, 2020). In Vietnam, the state of unmet health care needs still exists in many regions, in many types of disease (Kim et al., 2020; Meyrowitsch et al., 2021). Secondly, in recent years, inequality in health care has increased. For example, in terms of family and individual, spending on health and health care relative to total household income of the lowest and highest quintile is 5.2% and 15.4%, respectively (UNICEF, 2014). In terms of supply and distribution, the number of doctors per 10,000 people in the capital city is 9, but in remote areas, this figure is 1. The number of doctors at the grassroots level is 1,995, while at the provincial level, it is 5,304. The percentage of commune health stations with doctors is only 78% (Vietnam Ministry of Health, 2017). It creates many disadvantages in accessing health care services, especially for vulnerable groups (the elderly, ethnic minorities, the poor, etc.). Moreover, regarding health care services for the older person group, evidences from the study of Adetunji showed that on the supply side, health providers had unsatisfactory levels of geriatric knowledge but reported high confidence in their knowledge (Adetunji, 2020). In conclusion, when Vietnam faces with challenges of aging population, the health system also faces challenges of limited capacity or willingness to further increase public expenditure, constrained human resources for health, capacity, and quality issues in the service infrastructure (Trieu et al., 2009). And preparing for better health and health care for an aging population by enhancing care delivery, strengthening for elder care workforce, fostering social engagement in late life, advanced illness, and end-of-life care is necessary (Rowe et al., 2016).

Besides health and health care problems, aging also brings many consequences in social and economic aspects. An immediate effect of population aging is the increased number of retirees, implying that a growing number of elderly populations have to be supported by the young and economically active (Naja et al., 2017). The experience of loneliness and lack of social integration influences the well-being of the elderly and the consequences of aging. Other than psychological well-being, isolation of the elderly may increase experiences of abuse, violence, and discrimination (Ince Yenilmez, 2015; Naja et al., 2017). The factors such as living arrangements, labor force participation, and pension system are the main social characteristics that affect the welfare of the elderly and need to be concerned (Bos & Von Weizsacker, 1989; Gilford, 1988; He et al., 2016; Ince Yenilmez, 2015).

Population aging is an economic problem (Lee et al., 2010). On the economic aspect, aging brings many economic issues such as reduced rates of growth of per capita national income; the relative economic status of the elderly depending on the existing tax-transfer systems, and the income of families whose head is over age 65 being more unequally distributed than the income for younger families (Bos & Von Weizsacker, 1989). Particularly in the context of population aging, while there has always been an interest by planners in the likely future number of school-age children or young adults trying to enter the labor market, the currently dominating questions relate to the sustainability of pension systems under conditions of the rapid increase in the number of elderly (Lutz & KC, 2010). Therefore, aging is closely linked with poverty in various dimensions (T. L. Giang & Pfau, 2007; Marchand & Smeeding, 2016). The transition to an aging society brings serious financial challenges to all institutions in any economy. Even most developed countries that had foreseen these problems coming for two decades are still struggling to find money to pay for the bulging retirement income and health care costs for the growing elderly population (Ogura & Jakovljević, 2014).

1.4 Benefits and the importance of preventive health care in aging societies

Following the definition of American Board of Preventive Medicine, preventive medicine/preventive health care is the specialty of medical practice that focuses on the health of individuals, communities, and defined populations. Its goal is to protect,

promote, and maintain health and well-being and to prevent disease, disability, and death. In most studies, they defined preventive care as those situations in which consumers may consider themselves healthy or physically at risk but have not yet been labeled with a diagnosis (Kane et al., 2004). This includes individual-based health promotion and preventive health behaviors as defined in Healthy People 2000 and 2010 (Promotion, 2000; Service, 1991) but excludes mental health, substance abuse, and health protection concerns such as injury prevention, occupational health and safety, environmental health, and oral health.

Regarding preventive health behavior, it is defined as “any activity undertaken by a person believing himself to be healthy, for the purpose of preventing disease or detecting it in the asymptomatic stage” (Kasl & Cobb, 1966). It covers a wide spectrum of behaviors for both consumers and providers, from simple, one-time vaccinations to complex behavioral changes such as weight control. In which, common preventive health behaviors were immunizations, regular health check-up, health screening physicals, blood pressure control, cancer detection education, health counseling/education, nutrition counseling/education, exercise/physical fitness programs, sexually transmitted disease prevention, etc. (C. S. Scott & Neighbor, 1985).

Preventive health care plays an important role because of the benefits it brings. Salkeld gave an overview when his study findings showed that in most forms of evaluation the benefits of preventive health care are defined in terms of reductions in future morbidity and mortality (Salkeld, 1998). In most countries, when a major part of the disease burden for older persons is attributable to chronic diseases, preventive health care is considered as one of the central solutions to disease control (Fried & Bush, 1988).

The two main aspects related to the benefits of preventive health care are (i) the reduction of morbidity and (ii) the reduction of mortality. The benefits have been evidenced in many studies. Starting with developed countries, in the United States, greater use of clinical preventive services could prevent the loss of more than two million years of life expectancy annually (Michael V Maciosek et al., 2010). Besides, while falls are the most common cause of injury-related morbidity and mortality in

aging societies (Guirguis-Blake et al., 2018), relevant interventions with preventive and primary care can reduce falling among community-dwelling older adults. Thereby, it reduces injuries as well as diseases, especially those related to mobility (Michael et al., 2010). In Europe, by using a pre-post-controlled trial, a study by Franse et al. showed the effectiveness of the use of a coordinated approach between preventive health care and social care for the promotion of healthy aging of older persons. In detail, the intervention group had fewer recurrent falls; lower frailty; better physical health as well as mental well-being (Franse et al., 2018). Furthermore, the use of preventive health visits may decrease nursing home admissions and hospital days (Liimatta et al., 2016).

In developing countries, preventive health care has also been shown the benefits as well as the importance in improving health status, especially for older persons. In comparison with developed countries, health outcomes for the elderly in developing countries are even heavily contingent upon health screening, health education, and adequate health service provision (Lloyd-Sherlock et al., 2012). In Carrillo's study, after controlling for possible effects due to sociodemographic and health differences, Mexican older adults who used preventive health services reported better perceived health-related quality of life scores (Gallegos-Carrillo et al., 2019). Preventive health care as health screening is beneficial for many types of disease, especially chronic non-communicable diseases such as cardiovascular, diabetes, certain cancers, and depression (Sazlina, 2015). Besides, in the study by Nohara et al., the results demonstrated that regular health check-up is still beneficial even when it is electronic health check and teleconsultation (Nohara et al., 2015).

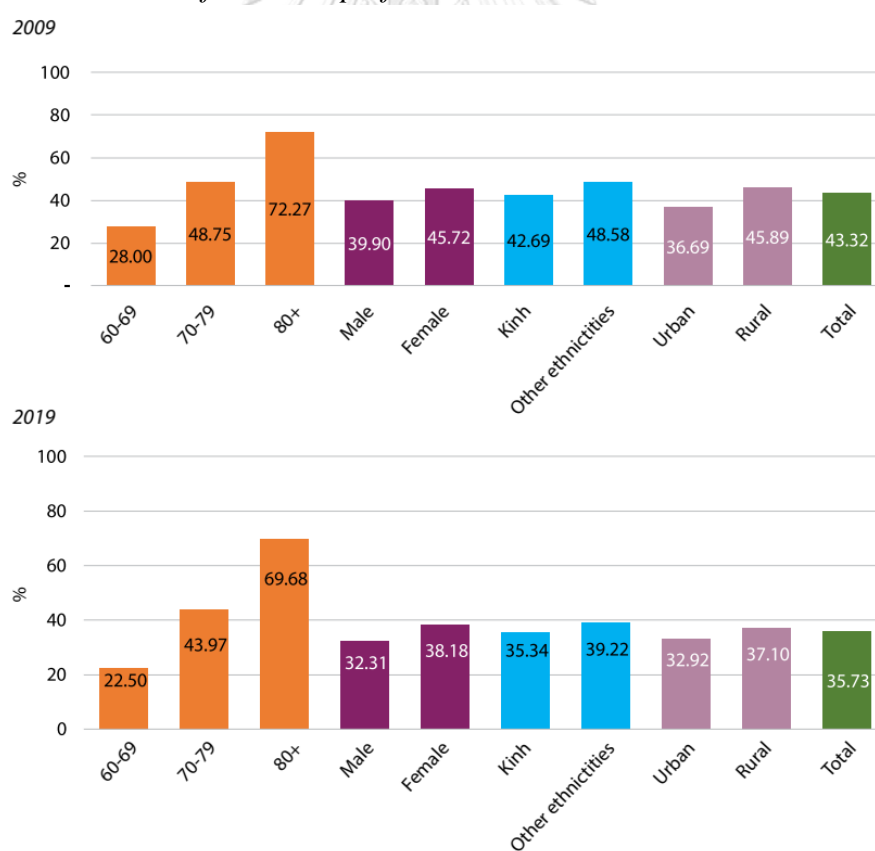
Preventive health care not only has health benefits but also provides economic value. In a specific example of the United States, increasing the use of clinical preventive services from current levels (ranging from 35 percent to 90 percent depending on the specific service) to 90 percent for all services would result in total savings of \$3.7 billion, or 0.2 percent of U.S. personal health care spending (Michael V. Maciosek et al., 2006; Michael V Maciosek et al., 2010).

1.5 Vietnam country context

- Health status of Vietnamese older persons

The health status of older persons depends on many factors such as gender, age, education level, economic status, etc. (Van Minh et al., 2010). The majority of older persons in Vietnam have difficulty with mobility and hearing (Le Van Kham, 2014; UNFPA, 2011; UNFPA Viet Nam & Duc, 2021; VIE022_Project, 2011). The Vietnam National Aging Survey in 2011 showed that the percentage of the elderly having at least one type of mobility difficulty was nearly 75% and having at least one obstacle in daily life was 37.6% (VIE022_Project, 2011). Following the updated data of UNFPA in 2019, it is clear that the rate of older persons having difficulties in functional performance decreased over time.

Figure 5. Proportion of older persons having at least some level of difficulty in functional performance, 2009 and 2019.



Source: (UNFPA Viet Nam & Duc, 2021)

On the one hand, although there are differences between vulnerable groups but in general, the health status of Vietnamese older persons is improving along with medical developments (Hoi et al., 2011; UNFPA Viet Nam & Duc, 2021).

On the other hand, self-rated health as well as chronic diseases still need attention in the context of population aging in Vietnam. According to data from UNFPA, in 2007, 5.32% of the older persons were in good health, and 52.71% were in normal health, but by 2011, according to the Vietnam National Aging Survey (VNAS), self-rated health of Vietnamese older persons showed signs of worsening health. The elderly with good health accounted for 4.8%, normal health accounted for 29.8%, moreover, the percentage of the elderly with weak (or very weak) health increased from 41.97% to 65.4% (VIE022_Project, 2011). Besides, based on many evaluation studies, common diseases in the elderly include hypertension, arthritis, obstructive pulmonary disease, heart disease, digestive system diseases, nutritional problems, etc. (An et al., 2007; Bang et al., 2017; Le Van Kham, 2014; UNFPA, 2011; VIE022_Project, 2011). Now, in part due to aging as well as to lifestyle factors and success in combatting other diseases, the situation of the disease in Vietnam is dominated by non-communicable diseases (NCDs) (Teo et al., 2019). NCDs occupy seven spots in the top ten causes of Vietnam's disease burden (more detail in Table 2.)

Table 2. Top Ten Causes of Disease Burden in Vietnam, 1990–2017

Rank in 2017		Category	Percentage			
			1990	2000	2010	2017
1	Cardiovascular diseases	NCD	11.7	14.5	15.9	17.0
2	Neoplasms	NCD	6.9	9.4	11.2	13.1
3	Musculoskeletal disorders	NCD	3.6	5.1	6.3	6.9
4	Diabetes and kidney diseases	NCD	3.3	4.3	5.1	6.2
5	Neurological disorders	NCD	3.5	4.7	5.3	5.4
6	Other NCDs	NCD	7.8	6.7	5.9	5.0
7	Unintentional injuries	INJ	6.7	6.3	5.6	5.0
8	Mental disorders	NCD	3.4	4.5	4.9	4.9
9	Transport injuries	INJ	4.2	4.8	5.6	4.9
10	Respiratory infections and tuberculosis (TB)	CD	11.1	7.1	5.5	4.4
	DALYs per 100,000 population		33,766	26,510	25,785	25,809

Source: (Roth, 2018)

In conclusion, while evidence proved clearly that medical developments bring many advantages in increasing life expectancy and improving health status, chronic non-communicable diseases are still a prominent problem, especially for aging societies.

Improving health care services, including primary health care and long-term care, is a key issue. Care for the elderly is a major need and a prioritized issue in health and social policies (Hoi et al., 2011).

- Current situation on health care system in Vietnam

The availability of health care services

Vietnam's health care system has undergone numerous reforms while institutionalizing a market-based mechanism (Matsuda, 1997; Q. H. Vuong et al., 2017; Witter, 1996). It is now a mix of public and private services of which the former is dominant (M. P. Nguyen & Wilson, 2017).

In the public sector, health care service comprises four administrative levels of health establishments: central level, provincial level, district level, and commune level. At the present, the public health care sector has a wide coverage from central to grassroots levels. Vietnamese government aims to make the health care system universal and affordable for all people (D.-C. Le et al., 2010). Commune health stations are the first point of contact for seeking medical care in public health facilities. It plays an important role in providing primary care, managing non-communicable diseases in the community, and promptly transferring older adults to adequate hospitals at the district, provincial, and national levels for further secondary and tertiary care as needed (Vietnam Ministry of Health, 2014).

Private health care services were legalized in Vietnam in 1989 as one of the country's means to mobilize resources and improve efficiency in the health system (N. T. H. Ha et al., 2002). It has expanded its activities rapidly and become an important provider of health services for the Vietnamese people (N. T. H. Ha et al., 2002) with a significant rise in private clinics that offer several types of outpatient and curative services (M. P. Nguyen & Wilson, 2017). After many years, now, the private health system has competed with the public health system in providing primary curative care and pharmaceutical sales to rural populations (M. P. Nguyen & Wilson, 2017; Tuan et al., 2005). Private health care services in Vietnam are seen as a major part of the solution to the rapid increase in the need and demand for health care services. However, in comparison with the public sector, the scale and size of the private sector

are still small, and the reputation is still limited (N. T. H. Ha et al., 2002; M. P. Nguyen & Wilson, 2017; Tuan et al., 2005).

In detail, according to the data of General Statistics Office in 2012, most private hospitals are small and are located in cities and towns, and comprised 4.2% of total hospital beds in Vietnam (General Statistics Office, 2014). Details of the number and the distribution of public and private health facilities are shown in the table below:

Table 3. Number and distribution of public and private health facilities of Vietnam, 2012.

No.	Economic Regions	Hospitals		Clinics		Other Facilities ^a		Hospital Beds	
		Public	Private	Public	Private	Public	Private	Public	Private
1	Red River Delta	242	37	83	116	11	4248	61284	1935
2	North Midlands and Mountain areas	167	4	153	20	14	1302	26 120	417
3	North and Central Coastal areas	205	32	101	58	12	3205	47 325	1678
4	Central Highlands	45	2	43	4	7	1161	8296	300
5	South East	104	57	42	296	16	4902	4316	4126
6	Mekong River Delta	147	23	60	22	28	6055	36 114	1045
	Total	910	155	482	516	88	20 873	222 855	9501

^aOther facilities include those outside the hospitals and clinics as traditional medicine, para-clinical and health service units. All public commune health stations exclude in the table.

Source: (General Statistics Office, 2014)

After six years, according to the Vietnam Ministry of Health based on 2018 data, there has been an increase in both of public and private health facilities. In detail, there were respectively 1192 and 228 public and private hospitals, 11819 commune health centers (CHCs), and roughly 30000 private clinics and other private facilities (Vietnam Ministry of Health, 2018). Hospital beds in the private sector accounted for only 6% of the total beds (Vietnam Ministry of Health, 2018) and were usually located in big cities (M. P. Nguyen & Wilson, 2017).

Current situation of the health care system

The health system in Vietnam consists of four levels: the national level with the Ministry of Health and central hospitals; the provincial level with the Provincial Department of Health and provincial hospitals; the district level with district health centers and district hospitals; and the communal level with commune health stations. Corresponding to each level are different types of health care.

Long-term care (the national level): A long-term care (LTC) system for the elderly is still a new concept in Viet Nam. Based on Vietnam National Aging Survey in 2011, although many older persons needed LTC, only 36% received help when they had difficulties with their activities of daily living (VIE022_Project, 2011). The proportion of older persons who will not receive any support for difficulties in activities of daily living is estimated to remain high (27%) (Van et al., 2021). In 2021, the Government released a new National Program of Action on Ageing. The program has many objectives across many domains, from work and culture to health, housing, and rights. LTC is covered in different programs and action points, with a strong emphasis on the promotion of aging in place, building a well-functioning market for elderly care services, and improvements in training family caregivers (Walker & Wyse, 2022). However, in fact, the LTC system of Vietnam still exists many gaps. It includes (1) primarily based on family; no consistent LTC training program, (2) nursing homes mostly located in big cities, mainly afforded by the better off, (3) the limited number of social protection centers, which do not meet all needs, operate inefficiently and (4) based on household out-of-pocket payment; limited government budget and health insurance (Van et al., 2021).

Tertiary care (the provincial level): Provincial hospital with tertiary care is usually a place to receive elderly people who have had medical history and have been treated at lower levels and transferred to. There were many studies showing that older persons with severe illness have higher odds of using tertiary care compared to other types of care (Mai, 2021; T. Nguyen & Giang, 2021a, 2021b). Although Vietnam prioritizes health care for older people and has developed financial protection policies to mitigate financial hardship due to out-of-pocket health expenditure, when older people sought tertiary care, the possibility of a household facing catastrophic health expenditure increased (N. H. Giang et al., 2021).

Secondary care (the district level): In fact, the boundaries of secondary care and primary care in Vietnam are quite blur. Community-level facilities provide primary or secondary care, while district hospitals also provide secondary care, even offer tertiary care if meet the standards (Treleaven et al., 2017). The choice depends on the availability of health care resources in the living areas. In example, older adults of

ethnic minority and living in rural areas were more likely to use commune health stations (Mai, 2021). Meanwhile, district hospitals with secondary care plays an important role for the urban older persons and especially for older persons with non-severe illness and (T. Nguyen & Giang, 2021b)

Primary care (the communal level): Commune health stations (CHCs) provide primary healthcare services including preventive and treatment services and conducting national targeted health programs for people living in their areas, especially in mountainous areas and ethnic minorities areas. People receive diagnoses and routine care at the commune health station and are transferred to the district hospital or the provincial hospital if needed (N. T. Ha et al., 2015). A prominent problem is that community-based palliative care is not covered by government health insurance and thus is almost completely unavailable. Work is underway to test the hypothesis that insurance coverage of palliative home care not only can improve patient outcomes but also provide financial risk protection for patients' families and reduce costs for the health care system by decreasing hospital admissions near the end of life. A national palliative care policy and strategic plan are needed to maintain progress toward universally accessible cost-effective palliative care services (Krakauer et al., 2018)

- Health care for older persons in Vietnam

Like many countries in the region, Revised Health Insurance Law in 2014 of the Government had policy to support older persons by having social support and free health insurance cards for citizen aged 80 and older and for the vulnerable elderly (those without caregivers, disabled, the poor). The drawback is that it is targeted at some segment of older persons while the possibility of facing catastrophic health expenditure is the same. In this case, Vietnam can completely follow the experience of Thailand. Thailand implemented its universal health-care coverage scheme (UCS) in 2001, consolidating several health insurance schemes and thereby reaching a large number of previously uncovered people. The objective of the scheme is “to equally entitle all Thai citizens to quality health care according to their needs, regardless of their socio- economic status”. This goal is based on the universality principle: the

UCS was conceived as a scheme for everybody and not as one targeted to the poor, vulnerable and disadvantaged (Gardne, 2021).

With regards to preventive health care, in recent decades, the Communist Party of Vietnam and the Government have embraced primary health care (PHC) as a strategy to achieve universal access to health care, aligning with the call for increased attention to primary health care from the 1978 Amla-Ata Conference (WHO, 1978). Up to now, PHC remains a priority in Viet Nam as a key strategy to ensure health care for all. Urbanization and an ageing population has brought a rapid epidemiological transition and shifting disease patterns (Singh et al., 2018), highlighting the need to strengthen PHC capacity for NCDs prevention and management through evolving the functions and structure of CHCs (Duong, 2015; Mendis et al., 2012; Van Minh et al., 2014). This is similar with Thailand and Cambodia in efforts to create equitable and equitable access to primary and secondary health care services for the elderly (Gardne, 2021).

Besides, increased national investments are needed in CHCs infrastructure and coverage of preventive and promotive health services under the health insurance fund to mitigate financial hardship due to out-of-pocket health expenditure as mentioned above. There is also an ongoing need for quality improvement of PHC services, particularly in the rapidly expanding and loosely regulated private sector, where further development is being encouraged by the government to reduce pressures on the public system. Prime Minister Decision No. 2348 set forth a national plan to strengthen the PHC network at district and commune levels in 2016–2025 by reforming PHC structure, working mechanisms, financing mechanisms and health worker development. Together, these reforms will indirectly improve the quality of PHC services through improving CHC infrastructure and staff training and availability.

However, up to now, developing the universally applicable care model in Vietnam that focuses on organized aged care seems to be an unattainable goal (L. T. Nguyen et al., 2022). Promoting the use of preventive health care in the elderly still has many shortcomings. The reasons are the barriers in accessing services, especially medical

costs. So, the main mechanism which Vietnamese older persons usually use for healthcare service is diagnosis and treatment (Mai, 2021). Meanwhile, the percentage of citizen in general use the preventive health care is quite low. Only 24% of the mountainous people had routine medical check-up in the past 12 months in a survey in 2020 (Ngo et al., 2021). And even in a survey which was conducted in Hanoi city, only 51.21% of participants had a health examination during 2016 (Vuong, 2017). There are not many studies focusing on preventive health care of older persons, especially in the use of health check-up services. Most of the available literatures on care models for the aged is drawn from developed countries (L. T. Nguyen et al., 2022). Information on the Implementation of the Madrid International Plan of Action on Ageing (MIPAA) in Asia and the Pacific – 2021 (including advancing health and well-being into old age) is not yet available as many countries in the region: Thailand, Cambodia, Malaysia, Philippines, etc. (Gardne, 2021).

In conclusion, Vietnam still lack effective policies in the areas of preventive health care as well as health services utilization of older persons. It is necessary to expand equal access to quality health services with a focus on preventive health care (World Bank, 2019); expand CHCs infrastructure and service access; improve CHCs service capacity and quality; increase availability of qualified CHCs providers (WHO, 2018) to actualize the policies set forth in this period as mentioned above.

- Policies responses

The fact that Vietnam is one of the most rapidly ageing countries in Asia will have important implications for future health care demands, health spending, and health outcomes (Teo et al., 2019). Vietnam has made remarkable progress in improving the health outcomes over the past two-and-a-half decades by reforming its policies and systems to respond to a changing context (Van et al., 2021). Table 4 will brief the main information about policy responses in the different periods of Vietnam.

Table 4. Policy responses in the different periods from 1976 to now of Vietnam.

Period	Demographic trend	Policy reform/shift regarding health care sector	Development of health system
1976-1990	<p>*In the context after the Vietnam War and the subsequent country reunification</p> <ul style="list-style-type: none"> - Data from the 1979 Census show that the population rate has increased 2.1 times - The average number of children per woman of reproductive age is 4.8 children - Life expectancy has increased 	<ul style="list-style-type: none"> - In this period, population policies focused on Family planning - The Government have embraced primary health care as a strategy to achieve universal access to health care, aligning with the call for increased attention to primary health from the 1978 Amla-Ata Conference 	<ul style="list-style-type: none"> - Private health care services were legalized in Vietnam in 1989
1990-2010	<p>* Success in population policy. In detail, the total fertility rate decreased rapidly from 3.8 children in 1991 to 2.3 in 2000</p> <ul style="list-style-type: none"> - In 2007, Vietnam officially entered the period of golden population structure. - In 2009, completing fertility reduction target - Face aging rapidly 	<ul style="list-style-type: none"> - Older persons are identified as a group that needs to be given top priority in health care. - On 23th November 2009, the Law on Senior was issued and defined the rights and obligations of the older persons; the responsibility of the family, government, and society in supporting, caring for, and promoting the role of the elderly; and the organizational structure of the Viet Nam Elderly Association 	<ul style="list-style-type: none"> - Focus on providing health care services to the elderly, specially establishing nursing homes for the elderly. - About public health facilities, it dictated that all public hospitals in Vietnam must have geriatric departments or reserve a specific number of beds for older persons
Current situation	<p>2009-2019:</p> <p>Elderly population had increased from 7.45 million to 11.41 million, equivalent to 8.68% and 11.86% of total population, respectively</p>	<ul style="list-style-type: none"> - Policies on health care for the elderly include the National Agenda for the Elderly in 2012–2020 (Decision 1781 / QD-TTg). - A Ministry of Finance circular prescribes the management and use of primary healthcare for older persons. - A Ministry of Health circular provides for healthcare for the elderly in healthcare facilities and communities - Revised Health Insurance Law in 2014: having social support and free health insurance cards for citizen aged 80 and older and for the vulnerable elderly (those without caregivers, disabled, the poor). 	<ul style="list-style-type: none"> - Lack of long-term care, the lack of enabling environments for aging in place, social isolation, increased health care costs and utilization, social security, protection against natural disaster, neglect, abuse, violence, and discrimination against older persons - Social subsidy, health insurance expense support is only for oldest-old group (over aged 80), and the elderly poor, but not for all older person. - Inadequacy of regulation about improving health facilities and the quality of health services

Period	Demographic trend	Policy reform/shift regarding health care sector	Development of health system
		<p>2016-2020: The Health Sector Development Plan of The Ministry of Health: proposed restructuring community services, increasing investment in CHCs infrastructure, reforming financing mechanisms to incentivize the provision of PHC, and reforming health worker training and allocation to improve CHCs staffing</p> <p>- 2016-2025: The Viet Nam Health Financing Strategy for 2016–2025 proposed financing reforms to institute payment mechanisms for PHC services, and prioritize PHC services and NCD care in a cost-effective health service package</p> <p>- In 2017, the Government issued Resolution 20-NQ/TW and emphasized that health prevention and PHC will be covered from the government budget</p> <p>- 2021: The government released a new National Program of Action on Ageing:</p> <p>Having objectives across many domains, from work and culture to health, housing, and rights.</p> <p>LTC is covered in different programs and action points, with a strong emphasis on promotion of aging in place, building a well-functioning market for elderly care services, and improvements in training family care givers.</p>	<p>- The public health system faces challenges of limited capacity or willingness to further increase public expenditure, constrained human resources for health, capacity and quality issues in the service infrastructure.</p> <p>- The private medical sector is draining resources from the State rather than complementing the weakened national health system</p> <p>- Human resource for health is currently inadequate to support growth in both public and private sectors</p> <p>- The current practice in both systems falls below the national standard</p> <p>- The increase of unmet health care needs, inadequate health care resources distribution, inequality in health care continue to be challenges to the use of health care services.</p>

Source: Author's compilation

Laws and health policies related to the older persons

Vietnam has health policies related to the older persons, including policies about health care for the general population and for the elderly. These policies are focused on the primary health care and health care services for the older persons, and at the same time on the increase of access to the quality health care services in both public and private sectors.

On 15th August 1992, Vietnam issued the national Health Insurance Decree calling for compulsory health insurance for salaried workers in the public and private sectors (Ministerial Decision No. 299/HDBT). After many years, the government has adopted health insurance as a national policy, and sees the contributions of the population as a long-term approach to reducing government health care expenditure and reaching stability in financing health care (Ekman et al., 2008; Ron et al., 1998). Now, based on the Revised Health Insurance Law in 2014, the government has social support and free health insurance cards for citizen aged 80 and older and for the vulnerable elderly (those without caregivers, disabled, the poor). The study of Thuong et al showed evidence that the Vietnamese health insurance scheme increased health care service utilization and decreased out of pocket for the participants (Thuong et al., 2020). Besides, the government subsidizes nearly 70% of the health insurance premiums for the near poor, including the elderly poor (Somanathan et al., 2014).

Older persons are identified as a group that needs to be given top priority in health care. On 23th November 2009, the Law on Senior was issued and defined the rights and obligations of the older persons; the responsibility of the family, government, and society in supporting, caring for, and promoting the role of the elderly; and the organizational structure of the Viet Nam Elderly Association ((Vietnam National Assembly, 2009), 39/2009/QH12). The law also mentioned the responsibility of the Ministry of Health to provide health care services to the elderly, specially establishing nursing homes for the elderly. About public health facilities, it dictated that all public hospitals in Vietnam must have geriatric departments or reserve a specific number of beds for older persons (Vietnam National Assembly, 2009).

Policies on health care for the older persons continued appearing in Decision No. 1781/QD-TTg that was issued on 22th November. It is the national action program on Vietnamese elderly for the 2012-2020 period. It was targeted that by 2015 at least 25 per cent of communes, wards and townships will support the establishment or operation of local funds for the care of, and the promotion of the role of the elderly; all ill older persons will be medically examined and treated and enjoy care by their families and communities and no longer live in make-shift or dilapidated houses; and 80 per cent of provincial-level broadcasting agencies will have a weekly program on

the elderly. Each province or centrally run city will have at least two elderly care centers up to quality standards. At the same time, Ministry of Health circular provides for health care for the elderly in health care facilities and communities and for management of chronic diseases. One more time, it emphasizes the role and responsibility of families, communities, and the whole society in caring for the elderly.

Policies to improve the availability and quality of health care services at the grassroots level

In all Decisions, Laws, Programs for older persons, improving the quality of health care facilities as well as its services were always mentioned. The government promotes primary health care and health care at the grassroots level. health policies related to the older persons cover all aspects of health care, including strengthening organizational structures, human resources, pharmaceuticals, health financing, and health care delivery.

- Future challenges

Vietnam is changing rapidly economically, with parallel shifts in epidemiology and demographics. There have also been significant policy shifts in recent years, including in the health sector. The combined effects of these transitions pose some risks to the sustainability of essential public health services, and will continue to put upward pressure on health spending (Teo et al., 2019). From a decade ago, Vietnam Ministry of Health indicated that in meeting the needs of a rapidly growing population with growing health care expectations, the public health system faces challenges of limited capacity or willingness to further increase public expenditure, constrained human resources for health, capacity and quality issues in the service infrastructure (Trieu et al., 2009). For the older persons, the prominent challenges of Vietnam are the lack of long-term care, the lack of enabling environments for aging in place, social isolation, increased health care costs and utilization, social security, protection against natural disaster, neglect, abuse, violence and discrimination against older persons (T.-V. Pham et al., 2020). The situations are similar situation to those in other Asian countries facing due to an aging population.

Although Vietnamese health insurance scheme brings numerous advantages to participants, 17 per cent of older persons did not hold social health insurance cards (T. Giang & Phong, 2017). Social subsidy, health insurance expense support is only for oldest-old group (over aged 80), and the elderly poor, but not for all older persons. It makes the burdens for older persons to utilize health services. “Having to pay cost” and “having sufficient income” were strong predictors for the use of health services (T. Nguyen & Giang, 2021b). The health care policies for the elderly are generally comprehensive, but most are difficult to implement due to the lack of funding and incentives and because penalties often do not result in effective implementation (H. Nguyen, 2016; Van et al., 2021).

With regards to health care system, there are substantial concerns with the adequacy of regulation about improving health facilities and the quality of its services. The private medical sector is draining resources from the State rather than complementing the weakened national health system (Ladinsky et al., 2000). The role of the private sector in achieving Vietnam’s population health objectives is not clear (M. P. Nguyen & Wilson, 2017). Human resource for health is currently inadequate to support growth in both public and private sectors (M. P. Nguyen & Wilson, 2017) and the current practice in both systems falls below the national standard, especially for the management of chronic health problems (Tuan et al., 2005).

The increase of unmet health care needs, inadequate health care resources distribution, inequality in health care continue to be challenges to the use of health care services.

1.6 Significance of the study

Vietnam is one of the countries with the highest population aging speed among Southeast Asian countries. The quick changes bring many challenges in many aspects of life, especially for older persons. In recent years, studies about Vietnamese older persons show that health status is one of the issues that need attention. The main reason is that, while the percentage of the older persons in good health and normal health showed signs of decreasing, the percentage of the older persons with weak (or

very weak) health increased. Providing and upgrading health services that are suitable for the need of different groups of older persons are necessary in the current context.

Hence, the study on the factors affecting health services utilization of the older persons is of great importance.

1.7 The objectives of the study

1. To determine the health status by severe injury report and health care service needs of Vietnamese older persons.
2. To investigate the factors associated with the use of health check-up services of Vietnamese older persons.
3. To investigate the differences in health care services utilization between different medical needs of Vietnamese older persons.

1.8 Research questions

1. What is the health status by severe injury report and health care service needs of Vietnamese older persons?
2. What are the factors associated with the use of health check-up services of Vietnamese older persons?
3. What are the differences in health care services utilization between Vietnamese older persons with different medical needs?

1.9 Expected outcomes

This study can identify the situation of the use of preventive health care services, effects and implications of the associated factors, as well as health care services utilization of Vietnamese older persons. The results can contribute new knowledge to formulate public policies, at the national level, especially for the health care of older persons.

CHAPTER 2. LITERATURE REVIEW

2.1 Previous studies on health care system and health services utilization of older persons

2.1.1 International context

As mentioned above, health status, health care, the health care system that supports the elderly are highlighted issues in this context of population aging.

From 1988, Gilford (1988) showed that the amount and types of health care services used by older adults are influenced by many factors. Health status and the level of illness or disability are clearly related to the need for health services as well as the frequency and intensity of service utilization. However, many factors unrelated to health needs also play important roles. These include public policies specifying the types of services and providers covered by public funds, cost-sharing provisions, the supply of alternative sources and types of care; advances or changes in health care technology and delivery systems; etc. (Gilford, 1988).

Nowadays, contemporary health systems of Europe have deployed a variety of mechanisms to support senior citizens in terms of health care services (Jakovljevic, 2015). Many legislations tackled equity issues in terms of both access and affordability of medical services (Jakovljevic et al., 2016; Judy et al., 2015)

These goals even among the wealthiest of European societies have been accomplished in part by expanding coverage, providing community support, expanding the network of nursing staff, providing services home care services (Bonsang & Schoenmaeckers, 2015; Fontaine et al., 2015). Although Europe has achieved many successes in improving health care systems to adapt with population aging, it still has challenges that need to be addressed. For example, there is an imbalance in European welfare for the care of the elderly when they compare between public and private health care expenditure (Pammolli et al., 2012). Besides, the current situation of ageing, health, long-term care, and welfare systems continue to be new challenges of Europe (Rechel et al., 2013). The solutions proposed from the studies are to balance sustainability, access and the distribution of resources across the functions of the public welfare

system (Pammolli et al., 2012); build and improve adequate systems of long-term care, ensure an appropriate combination of settings for long-term care that includes both formal and informal care, support economic and social integration (Rechel et al., 2009; Rechel et al., 2013) to help people to stay healthy and active in old age.

Not only Europe, but many also developed high-income countries still have health policy problems that are unsolved. One of the main issues is still the long-term care for the elderly (Ogura & Jakovljevic, 2018). With the longevity and differential gender mortalities, we observe not only a swelling population of the very old, overwhelmingly female, and poor, living alone. Only two or three decades ago, they would have been taken care of by their children or their families, but with family ties weakening, the government is now asked to step in to provide necessary social services for them (Murata et al., 2010). In the United States, significant deficiencies are projected in the country's capacity to deliver the medical, public health, and support services needed for the future frail and ill older population, and the nation is not investing sufficiently in keeping people healthy late in life. Valuable advances are needed in 4 vital directions: (i) develop new models of care delivery, (ii) augment the elder care workforce, (iii) promote the social engagement of older persons and (iv) transform advanced illness care and care at the end of life, especially for those at greatest risk (Rowe et al., 2016). Public health professionals will have to find innovative ways to meet the multiple needs of aging population. The public health system too must contribute its expertise to address the opportunities and challenges brought on by an aging US population. For example, public health surveillance systems that assess and monitor the health of the broader population can help track changes in the life conditions of older adults (Anderson et al., 2012). Another contribution from Japanese Study of Aging and Retirement (JSTAR) showed that Japan continues dealing with the formal and informal home-based medical care service utilization and nursing home service use (Chen et al., 2017). This situation is not different from Europe as mentioned above. The main message to the national authorities is that there is a "need to address a diversity of health outcomes and efficiency of services based on providing services to elderly through resource allocation to the different types of long-term care." (Chen et al., 2017).

The health care systems of many developing countries still put more focus on childhood and infectious disease as well as reproductive health services. Although the population aging process will lead to increased demands for care to address chronic health conditions but health care systems for elderly is not given enough attention (Organization, 2002). In developing countries with Asian countries as a prime example, health care system is a factor in sustaining the well-being of elderly people through physical and mental health care. Based on WHO health statistic reports in 2013, the health systems of Asia have lack of health care resource in low-to medium income countries, which consist of 90% of Asia populations (WHO, 2013). These groups include countries from Eastern Asia, South Asia, and South-East Asia. Most of them are developing countries that try to improve service quality in health care services for their people. From the WHO perspective, the health system should be focused on the health workforce, infrastructure, and technology. But in general, regardless of the focus, Asian countries should prepare their health systems to face with health care service demand from the aging population's growth (Sukkird & Shirahada, 2015; WHO, 2013).

2.1.2 In Vietnam

Many factors related to socio-economic, politic and characteristics of an ageing population have been identified as leading to the need for health care of older persons in Vietnam. However, Vietnam do not have many studies or literatures that focus on the care of an ageing population. Most of the available literatures on care models for the aged is drawn from developed countries (L. T. Nguyen et al., 2022)

Developing the universally applicable care model in Vietnam that focuses on organized aged care seems to be an unattainable goal, given the existing socioeconomic and regional disparities on the needs of care for elderly (L. T. Nguyen et al., 2022). Now, Vietnam is still in the first steps of coping with concerns and challenges about ageing population, so the government and policymakers tend to focus on conventional and local approaches, such as promoting community and family-based models of care. Besides, another problem is the differences between elderly women and men in health and social well-being (L. T. Nguyen et al., 2022) and there is quite an important concern we need to pay more attention, that is, the

economic burden will be an issue for society in the future, especially in the medical field (Danh, 2021).

Like most of Asian countries, one of the great difficulties in measuring health status in Vietnam is that one cannot rely only on the self-reports of respondents (Smith, 2012). However, data on other health measurement reports are incomplete. As a result, meeting health needs is hindered. Health care system of Vietnam at present has many key challenges. In detail, creating easily accessible health services, adapting to the growing needs for chronic illness management, reduction of disease risk, and improving healthy lifestyles and quality of life of the aging population are the prominent problems that need to be solved (Bang et al., 2017).

Access to health services among older persons is often limited by problems in mobility and the inability to pay for health care services (An et al., 2007). Therefore, health care services utilization of Vietnamese older persons depends on many factors and there are many choices of health care services. The choice of health care service depends on the area, especially the disadvantaged areas. The study of Tran et al. (2016) found that in remote and mountainous areas in Vietnam, 96% of respondents visited community health center at least once when they have a health problem, followed by district hospitals (42.0 %) (Tran et al., 2016). Based on the 2011 Vietnam National Aging Survey, Nguyen et al. found that among older persons who used health services, 15.1% visited central hospitals; 23.6% visited provincial hospitals; 28.0% visited district hospitals; 8.8% visited commune health centers; 18.3% visited private hospitals/clinics, and 6.2% visited other facilities. “Having to pay cost” and “having sufficient income” had a strong relationship with using commune health centers, district hospitals, and private facilities, while “having health insurance” did not show significant association with the use of these facilities. (T. Nguyen & Giang, 2021b). Besides, many factors such as age, gender, educational levels, employment status, living region or health insurance, household wealth, etc. were also associated with the choice of health care facilities (T. Nguyen & Giang, 2021a, 2021b). More updated information based on the study of Mai (2021) when using data of Vietnam Household Living Standards survey 2016, showed that Vietnamese older persons tended to use public hospitals for their health consultancies or regular health check-

up. In the case of older persons with non-severe illness, they were three times more likely to choose private clinics than commune health stations. Public health insurance was an important factor that makes the older person decide on commune health station instead of private clinics. Older persons of ethnic minority and those who live in rural areas tend to use commune health stations more than other health facilities (Mai, 2021).

In order to raise awareness and responsibility for health care for the elderly in the context of population aging, it is important to call on the political system and social organizations to join hands to participate in care work and health of the elderly, especially in the community (Nishiyama, 2015)

2.2 The use of preventive health care services of older persons and associated factors

Previous studies show that there were significant differences across countries in the average level of preventive service use after controlling for individual determinants of utilization. Evidence from the study by Jusot et al. (2012) used data of Survey of Health, Ageing and Retirement in Europe and the British Household Panel Survey to examine variations in the utilization of preventive services by the population aged 50 and over in 14 European countries (Jusot et al., 2012). In Vietnam, as mentioned above, ensuring good health for all residents regardless of their geographical locations and socioeconomic status is an important goal among 17 Sustainable Development Goals (Morton et al., 2017). However, Vietnam still lacks effective policies in the areas of preventive health care as well as health services utilization. Only 24% of the mountainous people had routine medical check-up in the past 12 months (Ngo et al., 2021). And even in a survey which was conducted in Hanoi city, only 51.21% of participants had a health examination during the previous year (Vuong, 2017). One of the most common reasons given for hesitating to have a health examination was wasting time.

In the context of population aging, the demographic transitions essentially need to shift the global focus to cater to the preventive health-care and medical needs of the elderly population (Shrivastava et al., 2013). Prevention and control of health

problems of older persons require a multifaceted approach including health, social welfare, rural/urban development, and legal sectors. Many years ago, demographic, economic, and humanitarian considerations indicated that effective preventive health care should be equally provided to the elderly (Stults, 1984). However, implementation is still a challenge because these factors still have the significant influence on the use of preventive health care services.

- **Predisposing factors**

Demographic factors

From many decades ago, demographic characteristics were identified as the first basic factors that are related to choices and the use of health care services of people, including older persons (John et al., 1987; Norton & McManus, 1989; Waldo & Lazenby, 1984). In the area of preventive health care, generally, understanding about the importance of preventive health care and using services such as health check-up, health screening is different between social groups.

Age

In general, the older the age group, the higher the average health services utilization (Acharya et al., 2019; Gong et al., 2016; T. Nguyen & Giang, 2021b; Vegda et al., 2009; Fredric D Wolinsky & Arnold, 1988; Yang et al., 2003). For the use of preventive health care, Korean older persons were more likely to have used primary care services at the age of 80 and older (Park, 2014); older age group in Ghana were positively associated with the use of health-check services (Awoke et al., 2017) and the same result was found among adults in Taiwan (Yen et al., 2014)

In contrast, many studies showed the opposite results – older age were significantly associated with decreasing use of health screening tests (Nancy L. Schoenborn et al., 2019; Tzeng et al., 2021), of joining in local health screening or wellness events (Tzeng et al., 2021) and of the use of primary care services in the United States (J. F. Murphy & Hepworth, 1996).

Gender

Gender is associated with the use of preventive health care of older persons, but the association varies depending on the study. The differences between men and women in using health services is mainly due to the type of disease.

On the one hand, the mean number of visits to the primary health care center and diagnostic services was found significantly higher for women than men in all age groups (Bertakis et al., 2000; Carretero et al., 2014). To reinforce this perspective, gender profiles of health care agency and inter-agency populations were used to clarify this service use patterns and identified high proportions of women in health and social care populations, particularly in older populations (Keene & Li, 2005). The same result with data from Brazilian National Household Sample Survey (Travassos et al., 2002) and other studies during the previous decades (Cameron et al., 2010; Green & Pope, 1999; T. Nguyen & Giang, 2021b; Redondo-Sendino et al., 2006; Roxo et al., 2021; Vegda et al., 2009; Viera et al., 2006; Yount et al., 2004; J. Zhang et al., 2020).

On the other hand, men tend to use care services more than women, based on a study of older persons with chronic conditions (Park, 2014). Similar results were obtained in the study of older persons with psychiatric diagnoses (Husaini et al., 2002), of older persons using inpatient care (Gong et al., 2016), and a study using data from the 2006–2014 National Health Interview Survey (Manuel, 2018).

Besides, there were studies that showed that gender is not a significant modifier of the relationship between health services utilization (Fylkesnes, 1993; Gyasi et al., 2019; J. F. Murphy & Hepworth, 1996; Solimeo, 2008). This includes a study from Vietnam (T. Pham et al., 2019).

Marital status

Although marriage or marital status has been shown to have important health-protective consequences, it is not clear to what extent these effects are due to marriage per se or to the fact that married people are less likely to live alone (Cafferata, 1987; Goldman et al., 1995; B. Zhang & Li, 2011). In fact, many studies emphasis the

effects of the social support or living arrangement on the need for the use of formal and informal health care services of older persons, independently of marital status.

However, numerous studies identified marital status as an independent factor which can predict the use of preventive health care as well as other health care services. In detail, those who were married had 1.11 times the preventive health care utilization rate of those who were unmarried (Yen et al., 2014); marital separation decreases the use of health screening tests and joining in local health screening or wellness events (Tzeng et al., 2021). Older persons who were unmarried/widowed tend to report worse health and need to use more health services than older persons living with a spouse (Crabb & Hunsley, 2006; Gong et al., 2016; Schone & Weinick, 1998; Tennstedt et al., 1990).

Socio-economic factors

Education level

Having less than a high school education was significantly associated with at least one of the unfavorable perceptions of the importance, the desire to perform, and the ability to perform three self-care behaviors, including creating habits that will improve health and prevent disease, use of health screening tests with health care providers, and joining in local health screening or wellness events (Tzeng et al., 2021). Elderly with no degree or only primary education were less likely to have had a health check-up compared to those with higher education (Hoeck et al., 2014). In contrast, older persons with higher education are more likely to have preventive services, physical examinations, health check-up (Amente & Kebede, 2016; Awoke et al., 2017; Gong et al., 2016; Jusot et al., 2012; Pokhrel, 2013).

Employment status

There are not many studies focusing on the association between the employment status of older persons and the situation of health care, especially preventive health care. Among the few studies, the results of the study by Irwan et al. (2016) found that, in Indonesia, employed older persons have better self-care practices (including monthly health check-up) (Irwan et al., 2016). Similarly, Okura et.al (2018) found

that Japanese older persons with paid work have higher odds of using health check-up (Okura et al., 2018). One possible explanation for the lack of studies on employment status of older persons and health care behaviors is that the reported working status of people aged 65 years and older (i.e. retirement, full-time job, part-time job or help their children with house chores) is not clear enough to demonstrate the use of their time and their ability for health care behaviors (Minami et al., 2015).

Place of residence and ethnicity

Place of residence and ethnicity are the factors representing the level of difficulty in accessing health care services. Emergency care visits were affected by the distance between patient's home and health care facility (Amente & Kebede, 2016) as well as the availability of transportation options (Mattson, 2011). The result is the difficulty in making trips and the likelihood of missing or delaying a trip. Besides, the greatest problems for people using public transportation for health care trips were inconvenient schedules, the need to match transit and medical schedules, and infrequent service (Mattson, 2011). Disadvantaged groups in Vietnam, especially ethnic minorities and those who live in poor, remote areas, and mountainous provinces have substantially worse health outcomes than the national average (Teo et al., 2019). And although they have higher medical need, evidence shows that being ethnic minorities could be a barrier to having health check-up, which might delay the early diagnose of severe health problems among these groups (Gong et al., 2016). On the other hand, the use of health check-up by those who live in the rural area was higher than those who live in the urban area (Yen et al., 2014).

Living arrangements

Living arrangements play an important role in health status as well as health services utilization of older persons. Social isolation indicators (living arrangements, marital status, number of children, contact with children, proximity to children, activity participation, social exchange) was assessed in relation to preventive health services utilization. In detail, significant lower mean in the use were found for adults living unpartnered, who were unmarried, had no children and were socially disengaged (Vozikaki et al., 2017).

On the other aspect, the results from many studies showed that elderly persons living with others had substantially fewer visits for health check than did elderly persons living alone (Barrenetxea et al., 2021; Cafferata, 1987; Gerst-Emerson & Jayawardhana, 2015; Penning, 1995; Pimouguet et al., 2017; Tennstedt et al., 1990).

Beliefs

Health literacy

The contribution of health literacy and belief is undeniable for having or not preventive health behaviors in older person group (Bennett et al., 2009; Fernandez et al., 2016; Levy & Myers, 2004; T. L. Scott et al., 2002; Springer & Mouzon, 2011). Individuals with adequate health knowledge tend to use preventive health services more than those with inadequate health literacy. Through disease and preventive health care, health literacy is even linked to mortality in the elderly (Baker et al., 2007). In addition, the availability of health services also affects the use of preventive health care. For example, older persons with a regular care provider or a regular place of care were more likely to receive clinical preventive services than those without either of these (Okoro et al., 2005).

- **Enabling factors**

Income

Income has an influence on the number of visits as well as the type of health care services.

Income was found to be a significant barrier to seniors undergoing a full medical check-up (Loke et al., 2020). Higher income is related to higher odds of utilizing health services, with all types of health care services (Acharya et al., 2019; Amente & Kebede, 2016; Gong et al., 2016; Mao et al., 2020). Higher income groups use more preventive services (Jusot et al., 2012). In detail, Awoke et al. (2017) found that older persons having higher wealth were associated with the use of health-check services (Awoke et al., 2017). Similarly, Gong et al. (2016) found that the older persons with better financial situation are more likely to have visits for health check (Gong et al.,

2016). In comparison with the group with the lowest income, the higher income group had 1.27 times the odds of using preventive health care (Yen et al., 2014).

Having health insurance

Not having social health insurance could be a barrier for older persons if they have medical need (Gong et al., 2016). Older persons who have more knowledge of social health insurance use more health care services (Acharya et al., 2019). Outpatient services for health checks decreased for the uninsured but increased for those with insurance (Mao et al., 2020). For elderly in Mexico, health insurance enrollees were more likely to use screening tests such as diabetes test, cholesterol, hypertension, and cervical cancer than the uninsured, especially those in employment-based and private insurances had higher odds of using preventive care for most of these services (Rivera-Hernandez & Galarraga, 2015).

2.3 The choice of health care facility and associated factors, with a focus on medical need factors

Medical need factors

Medical need factors include the perception and evaluation of older persons regarding their health status. Health status and level of illness or disability are clearly related to the need for health services and the frequency and intensity of service utilization (Gilford, 1988). Among the various health status dimensions included, self-rated health was found to be the most important determinant, regardless of type of service (Fylkesnes, 1993). As expected, older adults who worry about their health are more likely to use a variety of health services (Fredric D. Wolinsky & Johnson, 1991). Inadequate health literacy was associated with higher health care utilization and expenditures (MacLeod et al., 2017). Poor self-rated health was the main health need factor influencing Vietnamese older persons to choose commune health stations (T. Nguyen & Giang, 2021b).

Beside self-rated health, older persons with multi-morbidity, low functional status and chronic conditions were associated with higher odds of health care services utilization and had significantly higher out of pocket health expenditures (Acharya et al., 2019;

Ameh et al., 2014; Amente & Kebede, 2016; Cheng et al., 2020; Gerst-Emerson & Jayawardhana, 2015; T. Nguyen & Giang, 2021a; Saeed et al., 2016). In detail, those with limited activities of daily living have higher probability of seeing a doctor while those with functional loss have higher rates of having physical examinations (Gong et al., 2016). Older persons with two or more chronic conditions were more likely to use public and private outpatient care than other facilities (Awoke et al., 2017). In Vietnam, regarding health-needs factors, having three or more diseases was positively associated with the use of health care services in central hospitals (T. Nguyen & Giang, 2021b). Besides, evidence from the study of Mai (2021), showed that Vietnam older persons preferred using public hospitals for their health check-ups. In the case of older persons with non-severe illness, they were three times more likely to choose private clinics than commune health stations (Mai, 2021).

Other related factors

Predisposing and enabling factors are also related to the health services utilization in terms of the choices of medical establishment. Income is a remarkable example. Mao et al. (2020) showed evidence that, in China, middle and high-income groups have more outpatient visits and hospital admissions than the low-income group. In low income group, more than 20% of individuals have to forgo necessary hospitalizations, and the reason for 40% for these is financial barriers (Mao et al., 2020). Older adults with higher income preferred private health facilities (Acharya et al., 2019; Awoke et al., 2017; Saeed et al., 2016). This finding is not in conflict with result in the study of Nguyen et al. in Vietnam, showing that “having to pay cost” and “having sufficient income” were strong predictors for using private facilities, commune health centers, district hospitals, while “having health insurance” was not a significant predictor for using these facilities (T. Nguyen & Giang, 2021a, 2021b). Older patients with health insurance preferred public compared to private facility (Mai, 2021; Saeed et al., 2016) and notably, they were more likely to be hospitalized in central hospitals and provincial hospitals (T. Nguyen & Giang, 2021b). Besides, education level is not only associated with the choice of type of health care services, but also indicates a bias in social structure, often towards higher social status groups (Fylkesnes, 1993). Employment status was found in many studies as a predictor factor for the choice of

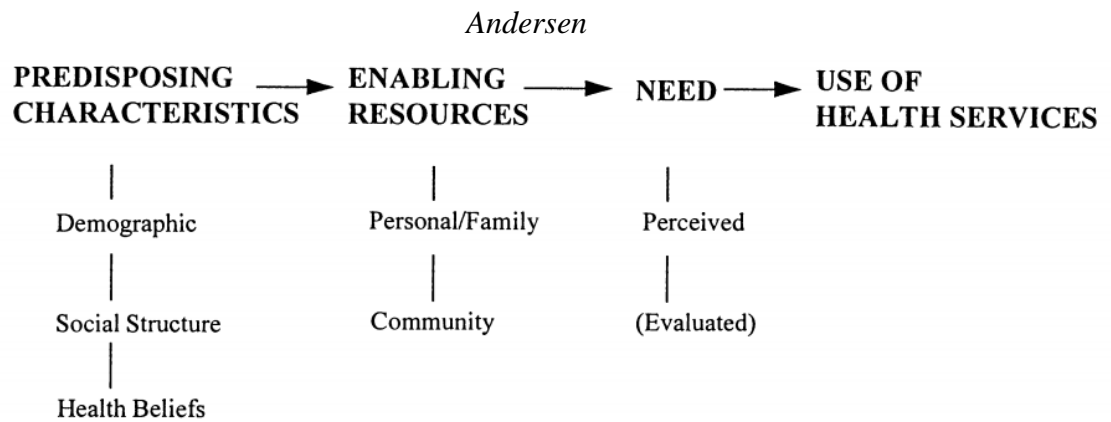
health care services of older persons. For example, self-employed and those in informal employment preferred traditional treatment (Saeed et al., 2016). There is a slightly decreased likelihood of using health treatments at central hospitals, provincial hospitals, district hospitals and private hospitals among working older persons compared to those who do not working in a study in Vietnam (T. Nguyen & Giang, 2021b).

Place of residence or ethnicity also shows how the availability of health care services in the area affects choice of use. In Vietnam, the results of Nguyen et al. (2021) indicated that health care utilization at central hospitals, provincial hospitals, and private health care services was more prevalent in urban than rural areas, while district hospitals and commune health centers were more utilized by rural residents (T. Nguyen & Giang, 2021b). The study of Tran et al. showed evidence that in remote and mountainous areas in Vietnam, 96% of respondents visited a community health center at least once when they have a health problem, followed by district hospitals (42.0 %) (Tran et al., 2016). This is not in conflict with the results of Mai that elderly of ethnic minority and those who live in rural areas tend to use commune health stations more than other health facilities (Mai, 2021).

2.4 Related theories on health care services utilization

The Behavioral Model of Health Services Use developed by Ronald M. Andersen was very useful and had many applications in numerous studies in this field (Babitsch et al., 2012). This model was first developed in 1968 and at first, it was focus on hospital choice with the initial research goal was to find out the conditions that enable (or delay) medical use (R. Andersen, 1968). This model identifies three main groups of factors that can affect health services utilization: predisposing, enabling, and medical need factors. Predisposing factors are those that exist before an individual has a need for medical services. They include both demographic characteristics and social structure factors such as age, gender, marital status, education level, occupation, ethnicity, etc. Enabling factors are related to family income, health insurance, place of residence. It represents the resources available to people to choose health services. Finally, medical need factors include illness level of an individual. It can be perceived by individuals or assessed by health professionals (Aday & Andersen, 1974).

Figure 6. The original Behavioral Model of Health Services by Ronald M.

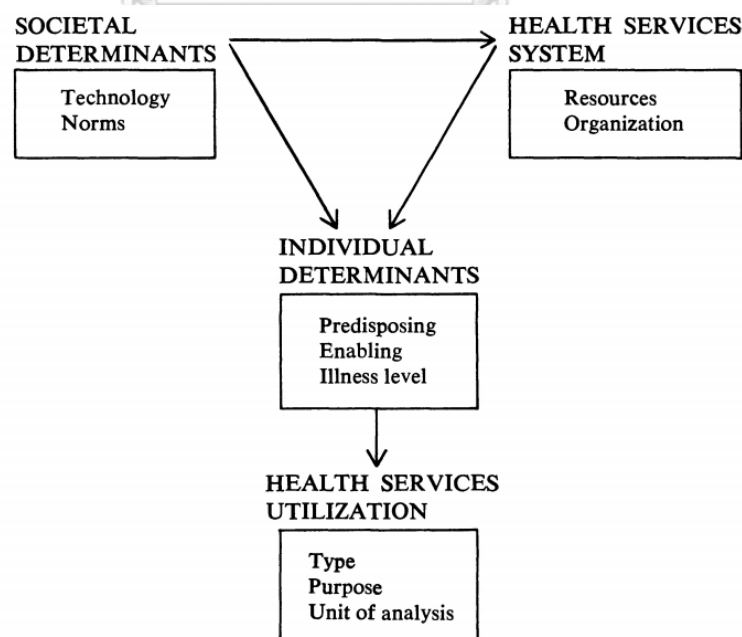


Source: (R. M. Andersen, 1995)

This model was reviewed and revised in the course of over 50 years (Aday & Andersen, 1974; R. Andersen & Newman, 1973; R. M. Andersen, 1995; Davidson et al., 2004; Phillips et al., 1998).

Below is the model showing how the framework which can be used to explain some of the key patterns and trends in usage:

Figure 7. Framework for viewing health services utilization

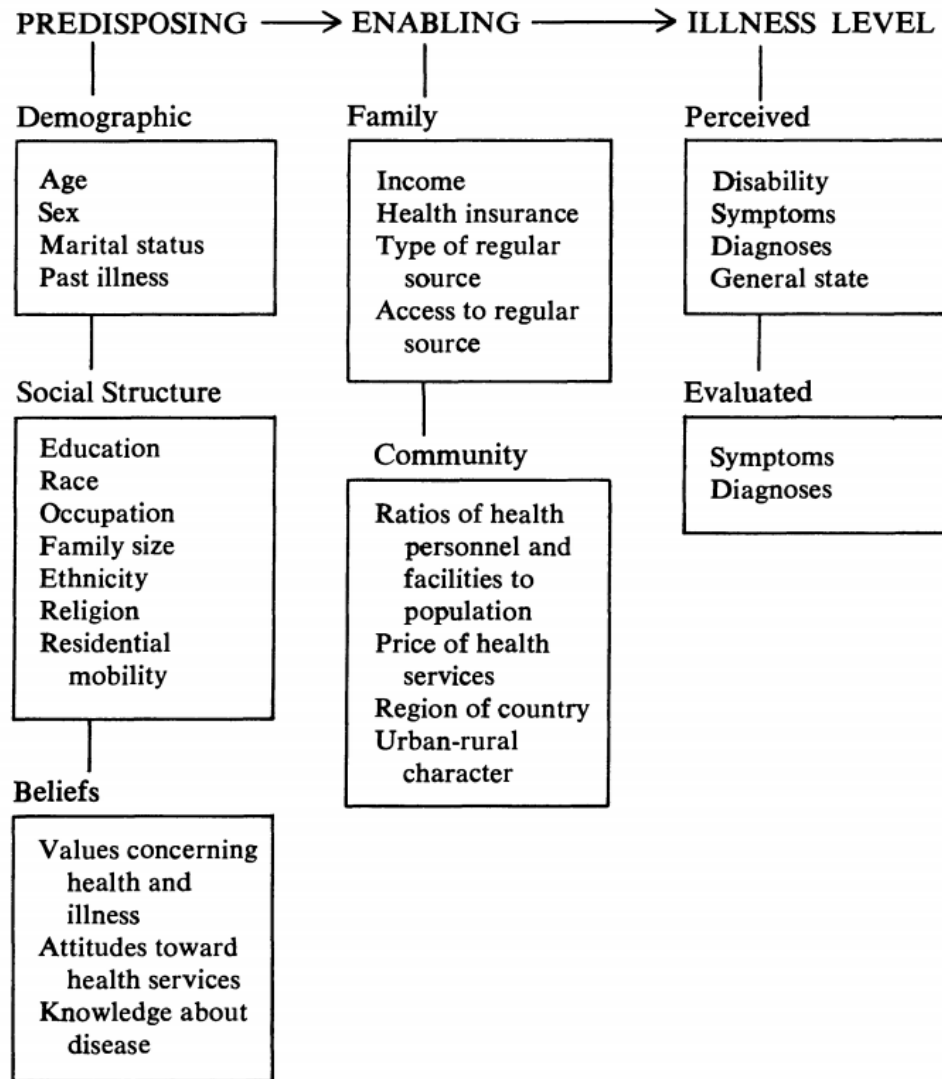


Source: (R. Andersen & Newman, 1973)

Figure 7 outlines a framework for viewing health services utilization which takes into account both societal and individual determinants. Societal determinants of utilization are shown to affect the individual determinants both directly and through the health services system. Various types of individual determinants then influence health services used by the individual (make detail in the Figure 8). The last major component of the framework defines the unit of health service utilization to be analyzed. This is an important dimension and it can depend on special characteristics of the unit analyzed. For example, utilization can also be presented by purpose such as primary care, secondary care, tertiary care, custodial care, etc.

Two main determinants of health services utilization are technology and norms. It is generally agreed that changes in technology have had considerable impact on the health services system and on utilization. The norms can be reflected through formal legislation as well as consensus of beliefs and homogeneity of values in the society, thus shaping the health service system and utilization patterns. The societal norms also have the great effect on health service utilization by the way medical care is financed. The extent of voluntary health insurance coverage and government payment of medical care are measures of the importance society attaches to a given service since third-party payments reduce the extent of financial hardship resulting from out-of-pocket expenditures for medical care and increase accessibility to that care in the population. And related to the health care system, it structures the provision of formal health care goods and services in society. A national health care system consists of two major dimensions, resources and organization. Together they shape the provision of health care services to the individual.

Figure 8. Individual determinants of health services utilization



Source: (R. Andersen & Newman, 1973)

In conclusion, with 50 years of evaluation and revision, Andersen's model outlined all the macro factors that influence individual determinants, and thereby, through individual factors, influence their health care services utilization. It covers many aspects of health care choice and is fully consistent with the household survey including full personal information provided.

CHAPTER 3. CONCEPTUAL FRAMEWORK AND METHODOLOGY

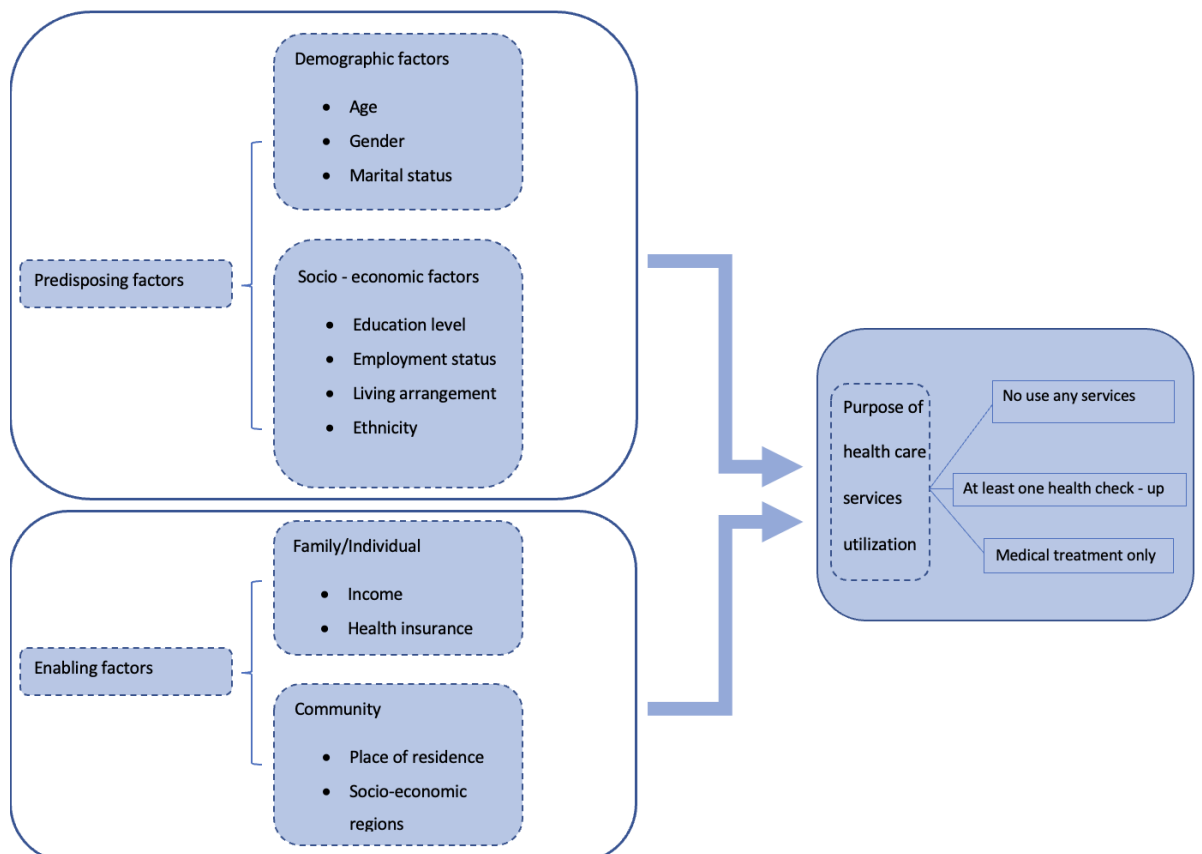
3.1 Conceptual framework and Variables

3.1.1 Conceptual framework

This study followed the behavioral model for health care utilization of Ronald M. Andersen (the 1995 revised version) (R. M. Andersen, 1995). For the purpose of the study, I developed two conceptual frameworks for two main research questions.

Part I:

Figure 9. Conceptual framework on associated factors explaining the purpose of health services utilization.



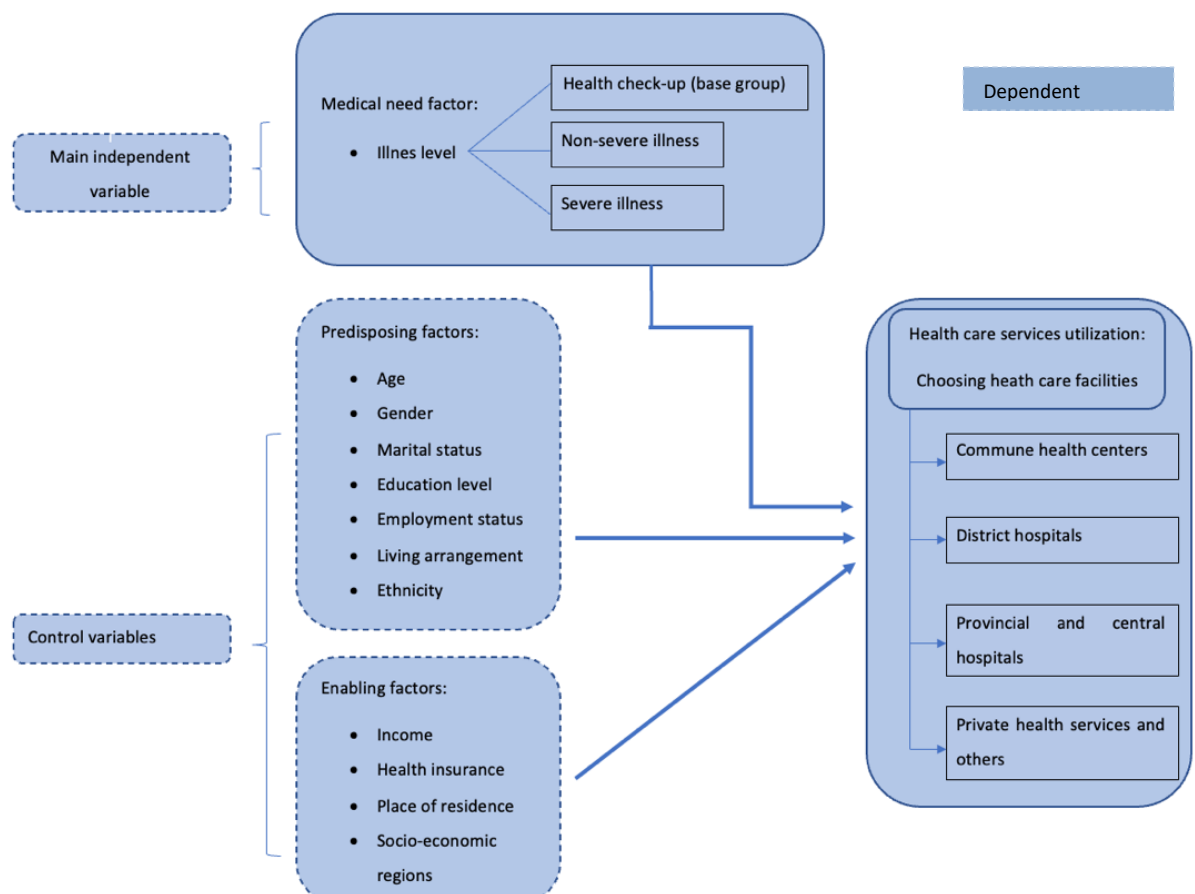
Source: Author's compilation

This model identifies predisposing factors and enabling factors that are associated with the purpose of health services utilization. Predisposing factors include

demographic factors such as age, gender, marital status and socio-economic factors, i.e education level, employment status, living arrangement and ethnicity. Enabling factors are related to family income, health insurance, urban/rural area and region of residence. The purpose of health services utilization is classified into three groups: (1) there was no use of any services, (2) at least one health check-up and (3) medical treatment only. With an emphasis on preventive health care, the study focuses on the differences between group (1) and group (2). This model aims to explain how the predisposing and enabling factors are associated with the use of health services for health check-up as compared to not using any health care services. For this analysis, the individual is the unit of analysis.

Part II:

Figure 10. Conceptual framework on the association between medical need factors and the chosen type of health care facility.



Source: Author's compilation

To address the following research question “*What are the differences in health care services utilization between Vietnamese older persons with different medical needs?*”, the following framework is employed to investigate the association between medical need factors and older persons’ choice of the type of health care facility after controlling for predisposing and enabling factors. Medical need factors are expressed by the illness level and divided into three groups: (1) health check-up, (2) non-severe illness and (3) severe illness. The choice of health care facility represents health care services utilization. The different choices are grouped into four groups with full hierarchies appropriate to the health care system of Vietnam: (1) commune health centers, (2) district hospitals, (3) provincial and central hospitals and (4) private health services and others. For the analysis, the visit to the health care facility is the unit of analysis.

3.1.2 Variable description

In considering the population at risk, the household survey is the best method for collecting data on the population at risk (Aday & Andersen, 1974).

In this study, for the analysis on the purpose of health services utilization, I focus on older persons as the unit of analysis. Information about the health services utilization was collected from the question to the interviewee: “*Has anyone in your household visited medical establishments or had home visits by physicians for check-up and treatment over the last 12 months?*”; “*Reasons to visit medical establishments?*” and “*Which medical establishments did the person visit?*”. Health care service utilization was coded into nominal variable indicating whether the older person visited any health care facility or used any health care service over the last 12 months. If the answer was “Yes,” the interviewee continues answering for health care service used and reasons for that visit. For the purpose of this study, the variables are classified as follows.

Variable	Description
Health care services utilization	
Purpose of health care services utilization	1- No use any services 2- At least one health check-up 3- Medical treatment only
Type of health care facility	1- Commune health centers 2- District hospitals 3- Provincial and central hospitals 4- Private health services and others
Predisposing factors	
<i>Demographic factors</i>	
Age	Age group: 1- Aged 60-69 2- Aged 70-79 3- Aged 80 and older
Gender	1- Male 2- Female
Marital status	1- Having spouse 2- Widowed 3- Others
<i>Socio-economic factors</i>	
Education level	1- Under primary school and others 2- Primary school 3- Secondary school 4- High school 5- College and above
Employment status	1- Working 2- Not working

Variable	Description
Ethnicity	1- Majority (Kinh/Hoa) 2- Minority (others)
Living arrangements	1- Living alone 2- Living with spouse only 3- Living with children and spouse (or without spouse) 4- Others (without spouse and children)
Enabling factors	
Income per capita	- Divided into 5 quintiles
Having health insurance	1- Not covered 2- Medicaid 3- Public health insurance 4- Private health insurance
Place of residence	1- Urban area 2- Rural area
Socio-economic regions	1- Red River delta 2- Northern midlands and mountain areas 3- North Central and Central coastal areas 4- Central Highlands 5- Southeast 6- Mekong River Delta
Medical need factors	
Illness level	1- Health check-up 2- Non-severe illness 3- Severe illness

3.2 Data and Research Methodology

3.2.1 Data

This study utilizes the data from the Vietnam Household Living Standard Survey (VHLSS) conducted in 2018 (the most recent survey was held in 2020, however, data was not available at the time this study was conducted). The survey used a cluster-randomized stratified sample to collect data, so that it was representative both nationally and regionally.

VHLSS has been conducted regularly by the General Statistics Office of Vietnam every two years. The purpose of the VHLSS is systematically monitor and supervise the living standards of different population groups in Vietnam; to monitor and evaluate the implementation of the Comprehensive Poverty Reduction and Growth Strategy; and to contribute to the evaluation of the achievement of the Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs) and Vietnam's socio-economic development goals. VHLSS 2018 includes contents in demographic characteristics related to living standards, education, health and health care, employment and income, expenditure, etc. The dataset has been utilized in many fields, including poverty, the labor market as well as productivity of agricultural production activities. For example, it is used to examine the poverty trend (C. Nguyen, 2020), to have an ex-ante assessment on the poverty (L. T. Giang et al., 2021), to examine the impact of migration on the income poverty (Hoang, 2021) and many other studies regarding poverty (Linh et al., 2020; Morgan & Trinh, 2020; NAM, 2021; Pimhidzai & Niu, 2021; Thuong, 2021; H. T. T. Tran et al., 2022; T. Q. Tran et al., 2022; Van Vu, 2020). With regards to the labor market, VHLSS 2018 is exploited in many aspects such as wages of ethnic minority workers (DO et al., 2020), women's choice of work (K. Vu & Glewwe, 2022), labor export and its impacts (Hoang et al., 2021) and several aspects in other studies (Coxhead et al., 2022; De Stefani et al., 2022; Doan, 2022; Khánh & Huy, 2022; T. M. Vu & Yamada, 2022). Besides, VHLSS 2018 has many applications for the agriculture industry of Vietnam. For example, the study of Lam et al. (2020) assessed improving the agricultural value chain financing (Lam et al., 2020), the study of Nguyen (2022) measured the production and impact of climate change on the capture fisheries (T. V. H. Nguyen,

2022) and other studies (H.-M. Le & Ludwig, 2022; Pacillo et al., 2020; Yamamoto et al., 2022; Zwiijgers, 2020). However, studies on the health section are still underutilized. There was only one study of Vu et al. (2022) and two studies of Thuong et al. (2021, 2022) regarding the catastrophic health expenditure (Thuong, 2021; Thuong et al., 2022; P. H. Vu et al., 2022). In particular, to the best of the author's knowledge, no previous study has used data from VHLSS 2018 to focus on the health problems of older persons.

Information in VHLSS 2018 was collected via face-to-face interviews with household heads and key officials at the commune level. It covered individual factors of health-seeking behavior such as information on the demographic and socio-economic characteristics of each member of the household and health services utilization over the past 12 months from the time of the interview.

The dataset of the VHLSS 2018 has a total 38,811 respondents from 9096 households in 3,133 communes/wards which were representative at the national, regional, urban, rural and provincial levels. Focusing on health care situation of older persons, this study employs a sample of older adults aged 60 years or older, who were defined as older persons by Elderly Law of Vietnam. There are 5037 older persons with 6030 responses regarding health care facility visits (an individual may provide multiple responses).

3.2.2 Data analysis

From the data set of VHLSS 2018, an older person could have many visits to health care facilities over the past 12 months. For the study of health care services utilization, the unit of analysis is the individual level (5037 observations) with three purposes of the use of health care services: no use of any services, at least one health check-up, and medical treatment only.

For the study of the type of health care facilities, we do not have information on the relationship between different visits of one person, so the assumption is that the visits to health care facilities are independent. This study uses a visit to a health care facility as the unit of analysis and focuses on four types of health care facility (4238 observations).

The study employs multinomial logistic regressions to analyze the predisposing, enabling, and medical need factors associated with health care services utilization. Results were expressed as the relative risk ratio (RRR) of comparison groups as compared to the base group (depending on the research question), with a 95% confidence interval (95% CI). All data analysis was done by Stata software version 16.



CHAPTER 4. RESULTS¹

4.1 Sample characteristics

Table 5 presents the demographic and socio-economic characteristics of Vietnamese older persons in this study. The sample size is 5037. As shown in Table 1, 57.7% of the respondents were female and the percentage was much larger than that of men (42.3%). This proportion is relatively similar to the overall national rate (ranging from 58.1% to 59.6% over the past decade) (UNFPA Viet Nam & Duc, 2021). More than half of the total older people in the survey were in the younger older group (aged 60-69). About 11.5% of respondents were ethnic minorities. Most of them resided in rural areas (two-thirds) and regions such as the Red River Delta, and Mekong River Delta (25.4% and 23%, respectively). Central Highlands and Northern Mountains had the lowest proportions of the older population. The main reason was that these regions had the highest fertility rates (about 2.43 in 2019), the lowest life expectancy at birth (70.3 years and 71.1 years in 2019, respectively) and negative net migration (-12.1‰ and -17.8‰, respectively) (UNFPA Viet Nam & Duc, 2021). In general, the majority of older persons were married or widowed (65.1% and 31.3%), while the proportion of other marital statuses (i.e. single, separated, and divorced) was small. The respondents usually lived with their children (70.1%) or lived with spouse only (21.1%). This is in line with the living culture of Vietnam.

Approximately 61% of these people had primary education or lower. Based on self-report through the question “Are you currently having job?”, 50.4% of the respondents were working, while 49.6% of those were not working. In comparison with Vietnam Aging Survey (VNAS) in late 2011, the percentage of older persons in this study working beyond the traditional retirement ages increased (in VNAS, it was 43.6%) (L. T. Giang & Le, 2018; VIE022_Project, 2011). This creates requirements about policies to ensure rights and to have support about income as well as social protection for older persons.

¹ The initial findings have been presented in the 13th International Graduate Students Conference on Population and Public Health Sciences (IGSCPP) organized by Chulalongkorn University and Mahidol University which has the proceedings (Preventive Health Care and Health Care Services Utilization of Vietnamese Older Persons: Results from National Household Living Standards Survey 2018)

Regarding health insurance, most of the older persons had public health insurance (79.1%) and 12.6% of those had a free health insurance card. However, the issue of free health insurance card still exists as there are many limitations. For example, it is not for all older persons aged 80 and older, it is only provided for people aged 80+ with no pension. Besides, it is necessary to highlight that 7.3% of older adults in this study were not covered by any health insurance schemes although the percentage was lower compared to the result from VHLSS 2016 (Mai, 2021).

Table 5. Demographic and socio-economic characteristics of Vietnamese older persons

Variables	Number of older persons	Percentage
Predisposing factors		
Age		
Aged 60-69	2889	57.4
Aged 70-79	1258	25.0
Aged 80 and older	890	17.6
Gender		
Male	2130	42.3
Female	2907	57.7
Marital status		
Having spouse	3281	65.1
Widowed	1577	31.3
Others	179	3.6
Education level		
Under primary school and others	1984	39.4
Primary school	1088	21.6
Secondary school	1154	22.9
High school	562	11.2
College and above	249	4.9
Employment status		
Working	2539	50.4
Not working	2498	49.6

Variables	Number of older persons	Percentage
Place of residence		
Urban area	1614	32.0
Rural area	3423	68.0
Socioeconomic regions		
Red River delta	1280	25.4
Northern midlands and mountain areas	688	13.6
North Central and Central coastal areas	1148	22.8
Central Highlands	251	5.0
Southeast	513	10.2
Mekong River Delta	1157	23.0
Ethnicity		
Majority	4459	88.5
Minority	578	11.5
Living arrangements		
Living alone	361	7.2
Living with spouse only	1063	21.1
Living with children and spouse (or without spouse)	3530	70.1
Others	83	1.6
Enabling factors		
Having health insurance		
Not covered	368	7.3
Free health insurance card	635	12.6
Public health insurance	3965	79.1
Private health insurance	49	1.0
Income per capita quintiles		
1, lowest	1010	20.0
2	1006	20.0
3	1007	20.0
4	1007	20.0
5, highest	1007	20.0
Total	5037	

Source: Author's calculations, using data from VHLSS 2018

4.2 Health status of Vietnamese older persons by severe injury report

Over the past 12 months prior to the survey, there were 800 respondents (15.9% of the older persons in this study) who had at least one severe injury (i.e., had to lie down in a place and be taken care of by a bedside caregiver or had to stop working or studying/could not participate in normal activities) with 59.8% of them having the severe injury one time, 20.5% two times, 19.7% three times or more.

Table 6. Number of severe injuries of Vietnamese older persons in the past 12 months

Times	Number of older persons	Percentage (%)
1	478	59.8
2	164	20.5
3 and above	158	19.7
Total	800	

Source: Author's calculations, using data from VHLSS 2018

4.3 Health care service needs of Vietnamese older persons

In general, most of the older persons in the survey sought a health care service when they had health problems and needed medical treatments. In detail, with a total of 6030 responses regarding health care facility visits, 53.3% of the visits were for medical treatment, 17.0% for health check-up, and 29.7% did not use any health care services over the past 12 months.

Table 7. Health care service needs of Vietnamese older persons

Health care service needs	Number of older persons	Percentage (%)
No use any services	1792	29.7
Health check-up	1023	17.0
Medical treatment for non-severe illness	2246	37.2
Medical treatment for severe illness	969	16.1
Total	6030	

Source: Author's calculations, using data from VHLSS 2018

4.4 The use of health check-up services and associated factors

The sample regarding health care facility visits included 5037 older persons with 6030 responses. Of these, by individual level, 1792 respondents (35.6%) did not use any health care services, 923 (18.3%) used health care services for at least one health check-up, and 2322 (46.1%) used health care services for medical treatment only.

Table 8. Health care services utilization by purpose

Health care services utilization	Number of older persons	Percentage
No use any services	1792	35.6
At least one health check-up	923	18.3
Medical treatment only	2322	46.1
Total	5037	

Source: Author's calculations, using data from VHLSS 2018

The second objective of the study is to identify predisposing factors and enabling factors that are associated with the purpose of health services utilization. The purpose of health services utilization is classified into three groups: (1) there was no use of any services, (2) at least one health check-up, and (3) medical treatment only. With an emphasis on preventive health care, the study focuses on the differences between group (1) and group (2) to explain how the predisposing and enabling factors were associated with the use of health care services for health check-up as compared to not using any health care services. Table 9 presents maximum likelihood estimates of the multinomial logistic model. The older persons who did not use any health care services (group (1)) are the base group. The table presents the Relative Risk Ratio (RRR) of having at least one health check-up and having medical treatment only.

Age, gender, education level, ethnicity, and living arrangement were the most important predisposing factors that were associated with the likelihood of the use of health check-up. The results show that higher age, being female, and having higher education were positively associated with the likelihood of using health check-up services as compared to not using any services. In detail, aged 70-79 compared to aged 60-69 had RRR of 1.4 (95% CI: 1.1-1.7), being female compared to being male had RRR of 1.2 (95% CI: 1.0-1.4), education level at primary school, secondary school, high school, college and above compared to under primary school had RRRs:

1.3(95% CI:1.0-1.6), 1.4 (95% CI: 1.1-1.9), 1.3 (95% CI: 1.0-1.8), 1.4 (95% CI: 1.0-2.3), respectively.

In contrast, co-residence with family members and being from the minority group were negatively associated with the likelihood of using health check-up services. In detail, living with spouse only and living with children compared to living alone had RRRs: 0.5 (95% CI: 0.4-0.8), 0.4 (95% CI: 0.3-0.6), respectively, and being from the minority group compared to the majority group had RRR of 0.6 (95% CI: 0.5-0.9).

Availability and beneficial levels of health insurance were the only enabling predictors of using health care services for health check-up. The relative likelihood ratio of using health check-up over no use by older persons who had free health insurance card, public health insurance and private insurance were 4.3 (95% CI: 2.7-6.8), 4.5 (95% CI: 3.0-6.8) and 3.6 (95% CI: 1.6-8.4), respectively, compared to those without health insurance. Place of residence such as urban/rural area or the country's socio-economic regions was not significantly associated with the use of health check-up.

As mentioned above, Table 9 also shows the Relative Risk Ratio (RRR) of the use of medical treatment only in comparison with not using any services. Age, employment status, education level, place of residence, regions, ethnicity, living arrangement, having health insurance and income were the factors that were associated with the likelihood of the use of medical treatment. In general, higher age, not working, living in other regions compared to Red River Delta (excluding Northern midlands and mountainous area), and having health insurance were related to the higher odds of using medical treatment as compared to not using any services. In detail, aged 70-79, aged 80 and older compared to aged 60-69 had RRR of 1.4 (95% CI: 1.2-1.6) and RRR of 1.2 (95% CI: 1.0-1.5). Older persons who were not working had RRR of 1.4 (95% CI: 1.2-1.6) compared to those who continued working. One possible explanation is that older persons with higher age and who are not healthy enough to continue working are likely to have more diseases and difficulties in their life, leading to a higher demand for medical treatment.

In contrast, higher education level, living in the rural area, co-residence with family members and being from the minority group were negatively associated with the likelihood of using medical treatment. In detail, high school; college and above as compared to under primary school had RRRs: 0.8 (95% CI: 0.6-1.0), 0.7 (95% CI: 0.5-0.9), respectively. Living in rural area compared to living in urban area had RRR of 0.9 (95% CI: 0.7-1.0). Living with spouse only and living with children compared to living alone had RRRs: 0.5 (95% CI: 0.3-0.7), 0.4 (95% CI: 0.3-0.5), respectively, and being from the minority group compared to the majority group had RRR of 0.7 (95% CI: 0.5-0.9). In general, the difference in place of residence such as socioeconomic regions, urban/rural area and majority/minority area can arise from the uneven distribution of the health care facilities and health workforce. For example, Red River Delta region (including the capital Hanoi) was one of the regions that had some of the best health outcome indicators (M. P. Nguyen et al., 2016). The situation was similar to the regional distribution of doctors and health care facilities. In detail, The Red River Delta had the highest density of doctors and pharmacists as well as the most central hospitals in Vietnam (M. P. Nguyen et al., 2016).

Table 9. Multinomial Logistic Regression Analysis focusing on the Use of Health Check-up

Variables	The use of health check-ups over no use			The use medical treatment only over no use			
	No use any services (%)	At least one health check-up (%)	Medical treatment only (%)	RRR	95% CI	RRR	95% CI
Predisposing factors							
Age							
Aged 60-69	39.6	18.2	42.2	1.0		1.0	
Aged 70-79	30.0	19.6	50.4	1.4	1.1-1.7***	1.4	1.2-1.6***
Aged 80 and older	30.6	17.0	52.4	1.1	0.9-1.5	1.2	1.0-1.5**
Gender							
Male	37.4	18.4	44.2	1.0		1.0	
Female	34.2	18.3	47.5	1.2	1.0-1.4*	1.1	0.9-1.2

Variables	The use of health check-ups over no use				The use medical treatment only over no use		
Marital status							
Having spouse	37.1	18.9	44.0	1.0		1.0	
Widowed	32.5	17.2	50.3	1.0	0.8-1.3	1.0	0.8-1.2
Others	34.6	18.4	47.0	0.9	0.5-1.5	0.7	0.5-1.1
Education level							
Under primary school and others	33.4	13.3	53.3	1.0		1.0	
Primary school	33.3	16.5	50.2	1.3	1.0-1.6*	1.1	0.9-1.3
Secondary school	40.3	23.8	35.9	1.4	1.1-1.9***	0.9	0.7-1.1
High school	38.4	23.5	38.1	1.3	1.0-1.8*	0.8	0.6-1.0*
College and above	34.9	28.5	36.6	1.4	1.0-2.3**	0.7	0.5-0.9**
Employment status							
Working	40.6	18.8	40.6	1.0		1.0	
Not working	30.5	17.9	51.6	1.1	0.9-1.4	1.4	1.2-1.6***
Place of residence							
Urban area	31.5	19.9	48.6	1.0		1.0	
Rural area	37.6	17.6	44.8	0.9	0.7-1.1	0.9	0.7-1.0*
Socioeconomic regions							
Red River delta	40.9	25.5	33.6	1.0		1.0	
Northern midlands and mountain areas	51.3	21.1	27.6	0.9	0.7-1.3	0.9	0.7-1.1
North Central and Central coastal areas	36.1	20.8	43.1	1.1	0.9-1.3	1.5	1.3-1.9***
Central Highlands	39.5	15.9	44.6	0.9	0.6-1.4	1.7	1.2-2.3***
Southeast	27.7	13.3	59.0	0.9	0.7-1.3	2.7	2.1-3.4***
Mekong River Delta	22.5	9.0	68.5	0.9	0.7-1.2	4.0	3.2-4.9***

Variables			The use of health check-ups over no use		The use medical treatment only over no use		
Ethnicity							
Majority	33.4	18.8	47.8	1.0		1.0	
Minority	52.2	14.9	32.8	0.6	0.5-0.9***	0.7	0.5-0.9***
Living arrangements							
Living alone	19.9	23.5	56.6	1.0		1.0	
Living with spouse only	32.9	22.9	44.2	0.5	0.4-0.8***	0.5	0.3-0.7***
Living with children and spouse (or without spouse)	37.9	16.5	45.6	0.4	0.3-0.6***	0.4	0.3-0.5***
Others	38.6	16.9	44.5	0.4	0.2-0.9**	0.3	0.2-0.6***
Enabling factors							
Having health insurance							
Not covered	59.5	7.3	33.2	1.0		1.0	
Free health insurance card	40.8	19.4	39.8	4.3	2.7-6.8***	2.7	2.0-3.7***
Public health insurance	32.5	19.1	48.4	4.5	3.0-6.8***	3.2	2.5-4.1***
Private health insurance	38.8	24.5	36.7	3.6	1.6-8.4***	3.6	1.6-8.4***
Income per capita quintiles							
1, lowest	40.2	18.3	41.5	1.0		1.0	
2	36.5	16.2	47.3	0.9	0.7-1.2	1.2	1.0-1.5*
3	35.5	15.8	48.7	0.9	0.7-1.2	1.2	1.0-1.5
4	34.3	17.8	47.9	0.9	0.7-1.2	1.2	1.0-1.5*
5, highest	31.4	23.4	45.2	1.2	0.9-1.6	1.3	1.0-1.6**

Source: Author's calculations, using data from VHLSS 2018

Notes: RRR is the relative risk ratio measuring the relative likelihood ratio of the use of health services for health check-up, for medical treatment only as compared to no use any health care services

*P < .1

**P < .05

***p<.01

4.5 Health care services utilization between Vietnamese older persons with different medical needs

Table 10 presents the analysis which excludes all respondents who did not use any health care services. The unit of analysis is health care facility visit. Overall, there were 4238 health care facility visits, where 538 visits (12.7%) were at commune health centers (CHCs), 1551 (36.6%) were at district hospitals (DHs), 1261 (29.8%) were at provincial and central hospitals (P/CHs) and 888 (20.9%) were at private health services and others (PSs). In comparison with DHs and P/CHs, CHCs had lower capacity, in terms of less availability of equipment and medication which leads to a low capacity for diagnosis and treatment (World Bank, 2015). Besides, private health care services have expanded rapidly (N. T. H. Ha et al., 2002) with a significant rise in private clinics that offer several types of outpatient and curative services (M. P. Nguyen & Wilson, 2017). These made the choice of the use of DHs most popular, having the highest proportion, followed by P/CHs, which can adapt capacity, equipment, and medication. The close follow-up was private health care services, which provide many conveniences while CHCs had the lowest proportion in the choice to use, as the results in Table 10 show.

Table 10. Health care services utilization by type of health care facility

Health care services utilization	Number of visits	Percentage
Commune health centers	538	12.7
District hospitals	1551	36.6
Provincial and central hospitals	1261	29.8
Private health services and others	888	20.9
Total	4238	

Source: Author's calculations, using data from VHLSS 2018

Table 11 shows the distribution of the choice of health care facility by medical need factors, predisposing factors, and enabling factors. Out of 1023 visits for health check-up, most older persons used district hospitals (40.9%) and provincial/central hospitals (28.0%). Meanwhile, for non-severe illness, the choice was quite evenly distributed among the three health care facilities: district hospitals, provincial/central hospitals, and private health care services with the percentage being 34.0%, 24.8%,

and 26.6%, respectively. For severe illness, the priority choice was provincial/central hospital (43.1%), followed by district hospitals (38.6%). This is appropriate when these health care facilities can meet the requirements in terms of expertise and equipment for patients with severe illnesses as discussed earlier.

Not only were there differences in the use of health care facilities between medical need factors, but also there were differences between predisposing factors and enabling factors. There were not many differences between age groups, gender, marital status, and living arrangements when the order of choice from highest to lowest was DHs, P/CHs, PHs and CHCs, respectively. The differences came from factors such as education level, working status, socioeconomic regions, ethnicity, availability of health insurance, and income quintiles. In detail, the higher the education level, the lower proportion of the use of CHCs. Instead, older persons chose P/CHs. Older persons who were not working tended to use more P/CHs than those who were working. This result can relate to the health situation of older persons when they are not healthy enough to continue working, they are likely to have more diseases and difficulties in their life, leading to a higher demand for P/CHs for medical treatment. The availability of health care facilities also matters. For example, P/CHs and DHs were priorities in the choice of the ethnic majority and Red River Delta, which has many big cities and central hospitals, while CHCs occupied a high proportion in the use among ethnic minorities, those in Northern midlands and mountain areas, where there are many difficulties in accessing health care services.

Regarding enabling factors, the highest income groups used more P/CHs. In contrast, the lowest income group used more CHCs. This is related to expense – the higher level of health care facility, the higher the expenses. Besides, having any type of health insurance made older persons more likely to choose public health care services, while for those without health insurance, the use of private health care services was more than half. The results point to the important role of health insurance in supporting older persons to reduce the economic burden of health care, especially for low-income groups.

Table 11. Frequency Distribution of Health Care Visits by the Choice of Health Care Facility

Variables	Number of visits	CHCs (%)	DHs (%)	P/CHs (%)	PSs (%)
Medical need factors					
Health check-up	1023 (100%)	15.6	40.9	28.0	15.5
Non-severe illness	2246 (100%)	14.6	34.0	24.8	26.6
Severe illness	969 (100%)	5.2	38.1	43.1	13.6
Predisposing factors					
Age					
Aged 60-69	2275 (100%)	11.4	37.3	30.1	21.2
Aged 70-79	1161 (100%)	13.5	37.0	28.3	21.2
Aged 80 and older	802 (100%)	15.2	34.2	30.9	19.7
Gender					
Male	1723 (100%)	11.9	37.7	31.0	19.4
Female	2515 (100%)	13.2	35.9	28.9	22.0
Marital status					
Having spouse	2696 (100%)	11.3	36.9	32.1	19.7
Widowed	1392 (100%)	15.7	35.6	25.3	23.4
Others	150 (100%)	10.7	39.3	28.7	21.3
Education level					
Under primary school and others	1762 (100%)	18.0	34.7	23.0	24.3
Primary school	950 (100%)	12.5	35.7	30.7	21.1
Secondary school	890 (100%)	8.0	42.2	32.8	17.0
High school	437 (100%)	5.9	37.3	39.1	17.7
College and above	199 (100%)	2.0	30.7	50.8	16.5
Employment status					
Working	1995 (100%)	14.6	39.3	23.7	22.4
Not working	2243 (100%)	11.0	34.2	35.2	19.6
Place of residence					
Urban area	1376 (100%)	4.2	35.7	40.5	19.6
Rural area	2862 (100%)	16.8	37.0	24.6	21.6
Socioeconomic regions					

Variables	Number of visits	CHCs (%)	DHs (%)	P/CHs (%)	PSs (%)
Red River delta	927 (100%)	6.5	43.1	35.5	14.9
Northern midlands and mountain areas	411 (100%)	22.6	38.7	26.5	12.2
North Central and Central coastal areas	995 (100%)	15.0	38.2	26.9	19.9
Central Highlands	184 (100%)	15.8	35.8	32.6	15.8
Southeast	453 (100%)	5.7	41.7	32.9	19.7
Mekong River Delta	1268 (100%)	14.3	28.2	27.3	30.2
Ethnicity					
Majority	3895 (100%)	11.2	36.7	30.7	21.4
Minority	343 (100%)	29.4	35.3	19.2	16.1
Living arrangements					
Living alone	400 (100%)	16.5	35.0	27.3	21.2
Living with spouse only	949 (100%)	10.6	38.4	32.6	18.4
Living with children and spouse (or without spouse)	2823 (100%)	12.8	36.2	29.2	21.8
Others	66 (100%)	15.2	38.9	30.3	16.6
Enabling factors					
Having health insurance					
Not covered	170 (100%)	6.5	21.8	17.6	54.1
Free health insurance card	477 (100%)	17.0	37.3	30.2	15.5
Public health insurance	3555 (100%)	12.5	37.1	30.2	20.2
Private health insurance	36 (100%)	5.6	47.2	33.3	13.9
Income per capita quintiles					
1, lowest	799 (100%)	22.2	39.0	22.2	16.6
2	828 (100%)	14.6	39.4	25.2	20.8
3	854 (100%)	12.9	35.2	25.2	26.7
4	859 (100%)	9.3	37.7	32.5	20.5
5, highest	898 (100%)	5.6	32.1	42.4	19.9

Source: Author's calculations, using data from VHLSS 2018

Abbreviation: CHCs - commune health centers; DHs - district hospitals; P/CHs - provincial and central hospitals; PSs - private health care services.

With the focus on health care services utilization among older persons with different medical needs, table 12 presents the likelihood estimates of the multinomial logistic model. For health care facility, private health care services are the base group and for medical need, health check-up is the reference group. The table presents the Relative Risk Ratio (RRR) of the use of commune health centers, district hospitals, and provincial/central hospitals.

The results show that in comparison with older persons who visited health care facilities for health check-up, the older persons who had non-severe illness were negatively associated with the likelihood of using public health care facilities as compared to private health care services. In detail, CHCs compared to PSs had RRR of 0.6 (95% CI: 0.4-0.8), DHs compared to PSs: RRR of 0.6 (95% CI: 0.5-0.8), P/CHs compared to PSs: RRR of 0.7 (95% CI: 0.6-0.9). In contrast, older persons who had severe illness had different choices in using health care facility. The relative likelihood ratio of using DHs and P/CHs over PSs were 1.3 (95% CI: 1.0-1.7), 2.1 (95% CI: 1.6-2.8), respectively, compared to those who visited health care facilities for health check-up. However, the likelihood of using commune health centers as compared to private health care services was still negative with RRR of 0.4 (95% CI: 0.2-0.5).

The results also show differences in the choice of health care facility between different predisposing factors and enabling factors. In detail, in comparison with male, female had the relative likelihood ratio of using CHCs over PSs of 0.8 (95% CI: 0.6-1.0). The older persons who were widowed had RRR of using P/CHs over PSs of 0.6 (95% CI: 0.5-0.8), compared to those who had a spouse. In comparison with education level under the primary school, all higher education levels were positively associated with the likelihood of using P/CHs and at the same time were negatively associated with the likelihood of using CHCs, as compared to PSs. Older persons who were not working tended to use more P/CHs than those who were working, in comparison with PSs with a RRR of 1.8 (95% CI: 1.5-2.2). Rural area (compared to urban area), Northern midlands and mountain areas, North central and central coastal areas, Central highlands (compared to Red River delta), and minorities compared to majorities had the relative likelihood ratio of using CHCs over PSs were 2.6 (95% CI:

1.9-3.6), 3.1 (95% CI: 1.9-5.2), 1.6 (95% CI: 1.1-2.3), 2.2 (95% CI: 1.2-4.2), 1.5 (95% CI: 1.0-2.2), respectively. In general, these places of residence have complex geographical terrain and have many difficulties in accessing health care services. Besides, with regard to private health care services, the scale was small (Vietnam Ministry of Health, 2018) and was usually located in big cities (M. P. Nguyen & Wilson, 2017). So, the use of private health care services still has many limitations. And finally, regarding enabling factors, while having any type of health insurance compared to not having health insurance was positively associated with the likelihood of using public health care services, all higher income groups compared to the lowest income group were negatively associated with the likelihood of using public health care services (all associations were in comparison with PSs such as CHCs over PSs, DHs over PSs, P/CHs over PSs). These results are reasonable when 91.7% of older persons had public health insurance (including free health insurance card). Besides, the expense of private health care services is normally more expensive than public health services leading to it not being suitable for the low-income group.

On the other hand, age, and co-residence with family members were not significantly associated with the choice of health care facility.

Table 12. *Multinomial Logistic Regression Analysis focusing on the choice of health care facility between different medical needs*

Variables	CHCs over PSs		DHs over PSs		P/CHs over PSs	
	RRR	95% CI	RRR	95% CI	RRR	95% CI
Medical need factors						
Health check-up	1.0		1.0		1.0	
Non-severe illness	0.6	0.4-0.8***	0.6	0.5-0.8***	0.7	0.6-0.9***
Severe illness	0.4	0.2-0.5***	1.3	1.0-1.7*	2.1	1.6-2.8***
Predisposing factors						
Age						
Aged 60-69	1.0		1.0		1.0	
Aged 70-79	1.0	0.8-1.4	0.9	0.6-1.2	0.9	0.7-1.1
Aged 80 and older	1.2	0.8-1.7	0.8	0.6-1.1	0.9	0.7-1.2
Gender						
Male	1.0		1.0		1.0	

Variables	CHCs over PSs		DHs over PSs		P/CHs over PSs	
Female	0.8	0.6-1.0**	0.9	0.7-1.0	1.1	0.9-1.3
Marital status						
Having spouse	1.0		1.0		1.0	
Widowed	1.0	0.7-1.4	0.8	0.7-1.1	0.6	0.5-0.8***
Others	1.1	0.5-2.2	1.1	0.7-2.0	0.8	0.4-1.3
Education level						
Under primary school and others	1.0		1.0		1.0	
Primary school	0.8	0.6-1.1	1.1	0.8-1.3	1.4	1.1-1.8***
Secondary school	0.6	0.4-0.8***	1.1	0.9-1.5	1.5	1.1-2.0***
High school	0.5	0.3-0.8***	1.0	0.7-1.4	1.4	1.0-2.0**
College and above	0.3	0.1-0.7**	0.9	0.5-1.5	1.6	1.0-2.6*
Employment status						
Working	1.0		1.0		1.0	
Not working	0.9	0.7-1.2	1.1	0.9-1.3	1.8	1.5-2.2***
Place of residence						
Urban area	1.0		1.0		1.0	
Rural area	2.6	1.9-3.6***	0.9	0.8-1.1	0.7	0.6-0.9***
Socioeconomic regions						
Red River delta	1.0		1.0		1.0	
Northern midlands and mountain areas	3.1	1.9-5.2***	1.0	0.7-1.5	1.1	0.7-1.7
North Central and Central coastal areas	1.6	1.1-2.3**	0.7	0.5-0.9***	0.6	0.5-0.9***
Central Highlands	2.2	1.2-4.2**	0.9	0.5-1.4	1.1	0.7-1.9
Southeast	1.0	0.6-1.8	0.9	0.6-1.3	0.8	0.5-1.1
Mekong River Delta	1.0	0.7-1.6	0.4	0.3-0.5***	0.5	0.4-0.7***
Ethnicity						
Majority	1.0		1.0		1.0	
Minority	1.5	1.0-2.2*	1.0	0.7-1.4	0.8	0.5-1.2
Living arrangements						
Living alone	1.0		1.0		1.0	

Variables	CHCs over PSs		DHs over PSs		P/CHs over PSs	
Living with spouse only	0.9	0.5-1.5	1.1	0.7-1.6	0.8	0.5-1.1
Living with children and spouse (or without spouse)	0.9	0.6-1.3	1.1	0.8-1.5	0.8	0.6-1.1
Others	1.7	0.7-4.6	1.5	0.7-3.4	1.2	0.5-2.8
Enabling factors						
Having health insurance						
Not covered	1.0		1.0		1.0	
Free health insurance card	5.8	2.8-12.1***	5.4	3.3-8.8***	4.9	2.9-8.4***
Public health insurance	5.4	2.8-10.4***	4.6	3.0-6.9***	3.9	2.6-6.1***
Private health insurance	5.3	0.9-33.0*	5.4	1.8-16.2***	2.6	0.8-8.5
Income per capita quintiles						
1, lowest	1.0				1.0	
2	0.6	0.4-0.8***	0.7	0.6-1.0**	0.8	0.6-1.1
3	0.5	0.4-0.7***	0.6	0.4-0.8***	0.7	0.5-0.9**
4	0.5	0.4-0.8***	0.7	0.5-1.0**	0.9	0.7-1.3
5, highest	0.4	0.3-0.6***	0.5	0.4-0.7***	0.9	0.7-1.4

Source: Author's calculations, using data from VHLSS 2018

Abbreviation: CHCs - commune health centers; DHs - district hospitals; P/CHs - provincial and central hospitals; PSs - private health care services.

RRR is the relative risk ratio measuring the relative likelihood ratio of the use of CHCs, DHs, P/CHs as compared to PSs

*P < .1

**P < .05

***p<.01

CHAPTER 5. DISCUSSION AND CONCLUSION

5.1 Discussion

The study identified the health status and health care service needs of all respondents who aged 60 and older in the Vietnam Household Living Standards Survey. Through health care services utilization, this study identified the situation of the use of health check-up, the choice of health care facility as well as the implications of the associated factors.

Although the percentage of older persons who had to lie down in a place and be taken care of by a bedside caregiver was not very high, repeated injury (twice or more) was common in the elderly, home care or long-term care will become a problem which needs to be of more concern. In the survey, older persons usually sought a health care service when they had health problems and needed medical treatments. This study provided evidence that older persons had not paid attention to preventive health care with only 17% of the use of health care services being health check-up. This becomes the main barrier to ensure good health for older persons as well as to reduce the burden for the health care system of Vietnam.

- The use of health check-up services of Vietnamese older persons

The study found that age, gender, education, ethnicity, living arrangement and having health insurance were significant correlates of health care services utilization in terms of health check-up. The finding regarding age is not in conflict with studies in several other countries: the older the age group, the higher the health services utilization (Acharya et al., 2019; Awoke et al., 2017; Gong et al., 2016; T. Nguyen & Giang, 2021a; Park, 2014; Yen et al., 2014). However, the study only found the difference between the middle-old and the youngest-old and did not find any significant difference between the oldest-old and the youngest-old. The possible explanation may be that older adults, especially the oldest-old, reported older age as a common reason for them to decide to have fewer health checks or to stop screening because they understood the health situation as well as the diseases they had (Nancy L Schoenborn et al., 2017). With the situation in Vietnam, although more than half of the total older persons were in the younger group (aged 60-69), this group had the lower odds of

having a health check-up. This creates disadvantages in terms of having health examination and screening to detect diseases early in the older persons group, especially in the context of aging with non-communicable diseases.

With regards to gender, being female was positively associated with the likelihood of using health check-up services as compared to not using any service. It is not in conflict with the results from several previous studies. The mean number of visits to the primary health care center and diagnostic services was found significantly higher for women than men in all age groups (Bertakis et al., 2000; Cameron et al., 2010; Carretero et al., 2014; Green & Pope, 1999; T. Nguyen & Giang, 2021b; Redondo-Sendino et al., 2006; Roxo et al., 2021; Vegda et al., 2009; Viera et al., 2006; Yount et al., 2004; J. Zhang et al., 2020). There are several possible explanations for this difference. Firstly, the female hormone estrogen has been suggested to play a role in the differences in health between the two genders (O'Brien et al., 2005), and normally, women go through the process of giving birth so this higher utilization in the use of health check-up is often said to be as a result of reproductive health-care needs (Salganicoff et al., 2012). Secondly, the lack of help-seeking behavior in men may be due to their perceptions of "masculinity" and affects early treatment and prevention (O'Brien et al., 2005). Additionally, besides there are several factors ranging from biological, social, and psychological, it has been shown in the literature that women generally report a poorer quality of life compared with men (Benyamini et al., 2003). The lower perceived quality of life may play a role in the way men and women utilize the preventive care services.

Older persons in the ethnic minority group had fewer opportunities to access services for health check-up compared to those from the ethnic majority groups. Besides, due to geographical distance, the main choice of ethnic minorities was commune health centers. However, based on the data of Ministry of Health in 2017, the number of doctors at the grassroots level was 1,995, while at the provincial level, it was 5,304. The percentage of commune health centers with doctors was only 78% (Vietnam Ministry of Health, 2017). This created many disadvantages in accessing health care services, both in terms of quantity and quality for ethnic minorities. Evidence showed that being ethnic minorities could be a barrier to having health check-up, which might

delay the early diagnosis of severe health problems among these groups (Gong et al., 2016). This finding demonstrates and adds to the evidence of inequity in access to quality health care among disadvantaged groups in Vietnam (Teo et al., 2019).

Previous studies reported that older persons who have more knowledge of social health insurance use more health care services, including health check-up (Acharya et al., 2019; Mao et al., 2020; Rivera-Hernandez & Galarraga, 2015). Several studies in other countries found that not having health insurance could be a barrier for older persons to access any health care services (Gong et al., 2016). In Vietnam, health insurance can cover at least 80% of health expense, so it plays an important role in reducing economic burden in health care. However, a prominent problem is that government health insurance did not cover community-based palliative care. Work is underway to test the hypothesis that insurance coverage of palliative home care not only can improve patient outcomes but also provide financial risk protection for patients' families and reduce costs for the health care system by decreasing hospital admissions near the end of life (Krakauer et al., 2018). This study confirms the importance of health insurance, which has a significant impact on having a health check-up. In comparison with data of VHLSS 2016, the percentage of older persons without health insurance reduced (in 2016, this percentage is 10.9%) but it is necessary to highlight that there are still approximately 7% of older persons who are not covered in any health insurance schemes in Vietnam. Therefore, interventions should address the main barriers that prevent the older population from having a health insurance.

This study found that personal income was not associated with health services utilization in terms of having a health check-up. This conflicts with many studies showing that higher income is related to higher odds of utilizing all types of health care services (Acharya et al., 2019; Amente & Kebede, 2016; Gong et al., 2016; Mao et al., 2020). However, in Vietnam, one possible explanation is that health insurance (with at least 80% coverage on health expenses as mentioned above) might play an important role in the health-seeking behavior of older persons. Instead, this study provides evidence that education and living arrangement were associated with the decision whether to use a health check-up or not. Similar to several studies (Amente

& Kebede, 2016; Awoke et al., 2017; Gong et al., 2016; Jusot et al., 2012; Pokhrel, 2013), in this study, older persons with higher education were more likely to have preventive health care services (i.e., health check-up). This may be related to better health literacy in higher education groups. It is important to note that policies should create equality and ease of access to health, including health information, even if the education level is different. Remarkably, older persons who were living with their spouse or their children had lower odds of using health check-up services compared to older persons living alone. Part of the reason may be the lack of interest to have preventive health care when living with their families and having support from family members. With more than 90% older persons living with at least one family member because of culture of Vietnam, it is really a prominent issue when the important role of preventive health care is not fully understood and paid attention to. This finding suggests that an innovative reform targeting older persons, even sub-groups of the older age community, is needed to address the diverse needs of older people.

- Health care services utilization between Vietnamese older persons with different medical needs

With different medical needs, older persons had different choices in using health care facility. Firstly, they were less likely to use commune health centers compared to private health care services for all levels of illness. This situation is not very different from the result of Mai (2021) when she found that the likelihood of choosing private clinics over commune health stations for non-severe illness was 3 times higher, and it is even higher 4 times for severe illness (Mai, 2021). A possible explanation for this finding might be CHCs had lower capacity, in terms of less availability of equipment and medication which leads to low capacity for diagnosis and treatment (World Bank, 2015). Moreover, for the prevention and control of non-communicable diseases (NCDs), CHCs were often underutilized and were not responsive to the health care needs of older person (Thi Thuy Nga et al., 2017; Van Minh et al., 2018). Reorganizing services and improving service quality at CHCs is necessary to ensure providing primary care for the prevention and treatment of NCDs as well as regaining health care trustworthiness from older persons.

Surprisingly, older persons with non-severe illness were negatively associated with the likelihood of using district hospitals and provincial/central hospitals. Instead, they still used more private health care services. On the one hand, the reason comes from the expanding rapidly of private health care services (N. T. H. Ha et al., 2002) with a significant rise in private clinics that offer several types of outpatient and curative services (M. P. Nguyen & Wilson, 2017). Although hospital beds of the private sector accounted for only 6% of the total beds (Vietnam Ministry of Health, 2018) but the private health system has competed with the public health system in providing primary curative care and pharmaceutical sales, even in the rural areas (M. P. Nguyen & Wilson, 2017; Tuan et al., 2005). On the other hand, for non-severe illness, health care costs are not too high, it can be affordable even without the support of health insurance. And one more fact, private health care services have short waiting times, personalized care, and proximity. These are the things that public health services have not done well because of overcrowding. Currently, private health care services in Vietnam are seen as a major part of the solution to the rapid increase in the demand for health care service and become an important provider of health services for the Vietnamese people.

And finally, older persons who had severe illness had higher odds of using district hospitals and provincial/central hospitals compared to private health services. This is appropriate when these health care facilities can meet the requirements for expertise and equipment for patients with severe illness. Moreover, severe illness often involves a long period of hospitalization and high expenditure so choosing public hospitals with health insurance coverage is a suitable choice instead of out-of-pocket expenditure for private health care services.

These findings suggest that an innovative reform toward a diversified structure of private and public health care facilities is necessary to address the diverse needs of older persons. In particular, creating more easily accessible commune health centers for rural and mountainous areas and reducing the uneven distribution between different areas are the first priorities. The main reasons are CHCs are the first point of contact for seeking medical care in public health facilities, and it provides primary healthcare services including preventive and treatment services, especially in

mountainous areas and ethnic minorities areas. Besides, improving quality services at CHCs and private health services also need more attention.

5.2 Conclusion

Over the past 12 months prior to the survey, there were 15.9% of elderly respondents had at least one severe injury with 59.8% of older persons having the severe injury one time, 20.5% two times, and 19.7% three times or more. The health status of older persons by severe injury report needs to be concerned.

Regarding health care services utilization, the main motivation for the elderly to seek health care services was medical treatment with 53.3% of the visits. While the health system in Vietnam has had a full range of medical establishments from public to private health services, the proportion of older persons in the survey who used preventive health care (i.e., health check-up services) was quite low, with only 18.3% of the respondent having at least one health check-up. The main barriers came from differences in demographic characteristics such as age, education, ethnicity, co-residence with family members and not having health insurance. The study highlights several key implications of the health-seeking behavior of older persons, with a focus on preventive health care. Policies to increase coverage of health insurance for older persons, to improve understanding of the role and importance of regular health check-up are necessary to increase the use of preventive health care services. The results also have had implications for targeted programs which focus on certain groups of the aged population, such as younger older persons (aged 60-69) and the minority group.

Besides, older persons with non-severe illness tended to use more private health care services while those with severe illness were more likely to use district hospitals and provincial/central hospitals (passing over CHCs). Policies need to focus on an innovative reform toward a diversified structure of private and public health care facilities, especially reorganizing services and improving service quality at CHCs to ensure providing primary care for the prevention and treatment of NCDs.

CHAPTER 6. RECOMMENDATIONS and STUDY LIMITATIONS

By using secondary data from VHLSS 2018, the study exploited many different factors regarding health care services utilization of older persons. The study highlights several key implications of the health-seeking behavior of older persons, with a focus on preventive health care. Policies to increase coverage of health insurance for older persons, to improve understanding of the role and importance of regular health check-up are necessary to increase the use of preventive health care services. The results also have had implications for targeted programs that focus on certain groups of the aged population, such as younger older persons (aged 60-69) and the minority group. With a regard to health care system, the study suggests that an innovative reform toward a diversified structure of private and public health care facilities is necessary to address the diverse needs of older persons. In this regard, creating more easily accessible commune health centers for rural and mountainous areas and reducing the uneven distribution between different areas are the first priorities. The main reasons are CHCs are the first point of contact for seeking medical care in public health facilities, and it provides primary healthcare services including preventive and treatment services, especially in mountainous areas and ethnic minorities areas.

The study has some limitations. First, the study employs secondary data and due to data availability, the study cannot use the latest survey of VHLSS (which is VHLSS 2020, as the data was not available at the time of the study). Second, it can not examine the role of social support, such as accessing health information, and health literacy of older persons in health services utilization as the information is not available. Future studies on health care of older persons should utilize the most recent information available, focus on the remaining limitations to have more multi-dimensional views, and explore further on this issue.

CHAPTER 7. ETHICAL DECLARATION

This study utilizes a secondary data. The data contained in the article are publicly available from the General Statistics Office of Vietnam. The author declared no potential conflicts of interest with respect to the research and authorship.



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