

Association for Information Systems AIS Electronic Library (AISeL)

PACIS 2010 Proceedings

Pacific Asia Conference on Information Systems
(PACIS)

2010

Introducing Health Information Systems to Aged Care in Vietnam

Lemai Nguyen

Deakin University, Lemai.nguyen@deakin.edu.au

The Hue Nguyen

Vietnamese Elderly Research Institute, nguyenthehue54@gmail.com

Follow this and additional works at: <http://aisel.aisnet.org/pacis2010>

Recommended Citation

Nguyen, Lemai and Nguyen, The Hue, "Introducing Health Information Systems to Aged Care in Vietnam" (2010). *PACIS 2010 Proceedings*. 64.

<http://aisel.aisnet.org/pacis2010/64>

This material is brought to you by the Pacific Asia Conference on Information Systems (PACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in PACIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

INTRODUCING HEALTH INFORMATION SYSTEMS TO AGED CARE IN VIETNAM

Lemai Nguyen, School of Information Systems, Deakin University, Victoria, Australia.
lemai.nguyen@deakin.edu.au

The Hue Nguyen, Vietnamese Elderly Research Institute, Hanoi, Vietnam.
nguyenthehue54@gmail.com

Abstract

Similar to many other countries worldwide, Vietnam is facing a challenge of an ageing population. This challenge is even more difficult to overcome because Vietnam is a developing country lacking an established aged care infrastructure and system. Many aspects of aged care have largely been relied on families of aged people due to a strong influence of Confucian philosophy. Looking after aged parents has always been seen as a responsibility and filial piety of children and their extended families. Therefore, providing healthcare for aged people in their family and community context is important. The paper offers a rich description and an analysis of the current situation of the health state of and healthcare for aged people in Vietnam. The paper also suggests directions for integrating information communication technology into aged care in Vietnam.

Keywords: Aged care, ageing population, aged care informatics, developing country, Vietnam

1 INTRODUCTION

This paper aims at developing a good understanding of the current health and healthcare for aged people as well as proposing directions for integrating information communication technology (ICT) into aged care in Vietnam. Similar to many other countries worldwide, Vietnam is facing a challenge of an ageing population in the coming decades. According to a survey in 2004, there were over 7.8 millions of the elderly (defined as individuals 60 years old and over), making up 9.9% of the population (Giang and Pfau, 2007). This proportion of the Vietnamese elderly in 2004 is higher than the official projections of 8.5% in 2005 and 8.7% in 2010 by United Nation (2009). Although these official projections may be lower than the real figures, a rapid increase of the aged population in Vietnam is still clearly observable. Table 1 presents a projection of aged population (over 60 and over 65) in four coming decades using the median variant scenario. In 2050, the number of people over 60 years old in Vietnam will reach about 25% of the population. A recent survey conducted by the Vietnamese General Statistics Office (2009) also suggests a rapid ageing process of the population.

Table 1. United Nation Projection of aged population in Vietnam (United Nation Data, 2009)

Year(s)	Proportion of the elderly (over 60)	Proportion of the elderly (over 65)
2010	8.7	6.3
2020	12.3	7.8
2030	18.2	12.4
2040	22.9	17.2
2050	26.6	20

The ageing population challenge presents a pressure in public expenditures and national productivity. The age pension system covers only the employees of the government sector and is managed by different government agencies under the government supervision (Giang, 2004). Such system is under pressure of the growing private sector since the Đổi Mới renovation (1986) that turned Vietnam into an open market driven economy. From a cultural perspective, aged care has traditionally been considered as a responsibility and filial piety of children and extended families. Providing care for aged people in nursing home is not yet widespread and culturally acceptable in Vietnam. While a long-term, national and sustainable approach to aged care is required, community (home-based) aged care remains a popular practice and needs to be well understood.

Vietnam is a fast developing economy. The country is in the process of modernisation especially with a rapid uptake of the Internet and information communication technology (ICT) in almost all aspects of life. There is an opportunity to integrate technology into aged care to improve quality of life and well being of the aged people. This paper presents findings from a recent study undertaken to investigate current health and healthcare for aged people in Vietnam and suggests opportunities in adopting information communication technology, particularly the Internet, to support some aspects in aged care. This paper also outlines research directions for introducing health information systems to aged care in Vietnam.

2 LITERATURE REVIEW

2.1 An overview of aged care in Vietnam

Various surveys were undertaken to describe the demographic of the elderly in Vietnam (Friedman et al., 2003; Friedman et al., 2001; General Statistics Office, 2009; Nguyen, 2008). Over 70% of the elderly live in rural areas (United Nations, 2007). Most of the elderly are married or widowed (General Statistics Office, 2009) with 98.6% of the male elderly are married (84.1%) and widowed

(14.5%) whereas 96.5% of the female elderly are married (43%) and widowed (53%). Most of the elderly live with or live near their children. Only a small proportion of the elderly live by themselves. 93.38% of the elderly population is looked after by their children or grandchildren when sick (United Nations, 2007). Aged care facilities, called community-based welfare houses, have been piloted but not yet gained a considerable acceptance. Such facilities aim primarily at poor aged people without family. According to Giang and Pfau's examination (2007), over 60% of the elderly population live in a household of an elderly head and non-elderly dependents and about 17% of the elderly live as dependents. The living alone elderly make up 20.67% of the elderly population. Although this examination pointed out an increase of the proportion of living alone elderly, it still confirmed that family structures remain strong in Vietnam despite dramatic socio-economical changes. There are different forms of family support including co-residency, food, money remittance, clothing and goods (Friedman et al., 2001).

Living conditions, poverty rates and pension were often examined used in previous research. In terms of living conditions, house structures, sources of drinking water and lighting, and hygiene conditions were found to improve overtime (General Statistics Office, 2006; Giang and Pfau, 2007). Still many elderly use water from rivers, lakes and ponds or live in households without toilets (Giang and Pfau, 2007). Poverty rates impressively decreased in Vietnam. This applies to the elderly as well. Poverty rates decreased from about 58% to 22% in rural areas and from over 19% to about 4% in urban areas between 1992 and 2004 (Giang, 2004). In terms of pension, only a small proportion of the elderly (government officers, state-owned enterprise workers, members of the communist party) receive age pensions when they retire (Giang, 2004; Friedman et al., 2001). In Vietnam, men retire at the age of 60 years old and women at 55. Recently, the Vietnamese government introduced Vietnam Social Insurance (VSI), a new scheme, to manage pension benefits for government public officers, state workers, party members, and employers of private enterprises with ten employers and over. Still the coverage rate is low and tends to limited to the government sector. Over 24% of the former state officers still work in their retirement due to inadequacy of the pension payment (Friedman et al., 2001). Many aged people still work as they age. Over 50% of the elderly between 60-64 work full-time or part-time and 37.1% between 65-69 work full-time or part-time. This number is reduced to 18.2% for the elderly over 70. The elderly who live in rural areas do not receive the government pension and 43.3% still earn their living. While these findings indicate active ageing of the elderly, they also point out a moderate degree of vulnerability of non-state retirees and living alone elderly to poverty risk.

Healthcare is an important aspect of aged care. The elderly people were born during different war periods in Vietnam. Poor nutrition, illness, and wounds due to the wars greatly affect their health and wellbeing as they age. Health of the elderly is a worrisome issue for their families, community and the government. Fighting with infectious diseases as well as managing chronic diseases can be seen as two major challenges in healthcare. According to United Nation country statement (2007), average life expectancy in Vietnam is 72 years old and is comparable to other developing countries in South-Asia. About 95% of elderly people suffer from a disease with an average of 2.6 diseases suffered per elderly person (United Nations, 2007). In 1999, medical costs for those over 75 made up 30% of the total medical budget of Vietnam (Nguyen, 2009).

Having recognised the national challenge of ageing population, the Vietnamese government takes various steps in aged care policy development. In 1995, the Vietnam Association of Older Persons was founded to guide and assist the aged people in improving their life quality and prolonging their life expectancy. Numerous programmes to fight against poverty, improve living conditions in rural areas, and to provide healthcare and healthcare insurance for aged people take place. In December 2009, the Vietnamese parliament has passed the Elderly Law to provide all Vietnamese aged 60 and above with special treatment and health care (Vietnamese Parliament online 2009). The Law will take effect from 1st July 2010. Individuals above the age of 80 will receive a monthly allowance from the Vietnamese Social Insurance fund and disadvantaged individuals aged 60 and over will receive special treatment from a social welfare fund. The government will give a budget priority for medical examination and treatment for aged people.

A national scale and long term approach to aged care is required. Such an approach should fit with the socio-cultural context and take advantage of technology and economic development in Vietnam. In the next subsections, we will briefly discuss these.

2.2 Culture and family structure

National culture can be defined as “*the collective programming of the mind which distinguishes the members of one human group from another*” at a national level (Hofstede, 2001, p.9). Culture shapes and defines norms of behaviours and value judgement that a group of people adhere to. There exists different theoretical frameworks to understand cultures (for example see Hofstede, 2001; Corbitt *et al.*, 2004). Amongst them, Hofstede’s framework tends to dominate cultural research in Information Systems (Thanasankit and Corbitt, 1999; Barton *et al.*, 2009). This framework consists of five dimensions: power relation distance, collectivism vs. individualism, uncertainty avoidance, masculinity vs. femininity, long-term vs. short-term orientation (Hofstede, 2001). These dimensions can be useful to understand the cultural influence in aged care in Vietnam, for example the collective effort in the multiple generation family in looking after aged parents and the father’s power and role as the household head. However, such an understanding reflects a Western analysis of the Vietnamese culture. In order to gain a deep understanding of the influence that culture has on aged care from a perspective of the involved social actors, one needs to look at the core values and behavioural norms as scribed in Confucian philosophy.

Confucian philosophy (Yao, 2000) has been strongly dominating the Vietnamese culture for thousands of years. It was often refereed to as a state religion. Confucianism defines a system of moral, philosophical and social norms, virtue and value judgement. Filial piety is one of the most important virtues that must be bestowed upon not only living people but also their dead ancestors. Three greatest relationships that a man must uphold include Ruled to Ruler, Son to Father, Husband to Wife. There are other important relationships between brothers and friends. Three obeying relationships that a woman must follow include Follow Father, Follow Husband, and Follow Son. Together with many other Confucian virtues and values, such relationships shape the parents’ expectations and children’s filial duties (norms). People are brought up with a strong message to return their parents’ effort and love in giving them birth and bringing them up. In the Vietnamese society today, the filial piety manifests through the co-residency, strong family structures, close contacts and proximity to extended family, and family financial support and care for parents despite Westernisation and rapid economic changes, as found in previous studies (Giang and Pfau, 2007; Friedman *et al.*, 2001). This is consistent with other studies in aged care in Taiwan (Wang, 2010). Westernisation take place in social and economic development but Confucianism continues to have a strong influence in Taiwan and Vietnam.

2.3 Technology development and adoption

According to Ministry of Finance, the Vietnamese ICT industry develops at a fast rate of 30 percent per annum on average between 2002 and 2007 (Vietnam financial review, 2008). The Vietnamese ICT industry consists of three major components of hardware, software and digital content. Hardware products are exported to 35 countries generating a revenue of \$2.2 billion in 2007 increasing 17-fold in the last decade. Software and outsourcing services are exported to Japan, North America and Western Europe. The software growth exceeds that of the hardware sector at around 40 percent per annum. The digital content sector grows through mobile networks, the Internet content, games and e-commerce. Since the introduction of the Internet in Vietnam over ten years ago, the number of the Internet users has been drastically increased. According to the Internet World Statistics, Vietnam is listed in the Top Ten of countries in Asia with the number of Internet users making up about 25% of the population (see Table 2). ICT and high-tech industries form a large and fast-growing part of the national economy.

With the widespread adoption of the Internet, many Vietnamese patients and family carers use the Internet to search for health information including illness and treatment options, or create Web blogs to exchange and share emotions and experiences (Nguyen *et al.*, 2008). With fast ICT development

and the Internet adoption, there is an opportunity to integrate ICT in aged care, especially when a large proportion of the Vietnamese elderly lives with their young family carers who are the Internet users.

Table 2. Internet users in Vietnam, source: <http://www.internetworldstats.com/stats3.htm>

YEAR	Users	Population	% Pop.
2000	200,000	78,964,700	0.3 %
2005	10,711,000	83,944,402	12.8 %
2007	16,737,129	85,031,436	19.7 %
2008	20,669,285	86,116,559	24.0 %
2009	22,779,887	88,576,758	25.7 %

Recently, ICT enabled solutions have been introduced in aged care in the region. Based on two case studies, Wang (2010) points out a dilemma faced by people in Taiwan in dealing with changes to social conditions while upholding customary filial expectations. This author suggests using assistive technologies, such as wandering alarms, motion sensors, automatic door locking, and monitoring devices, as possible solutions to this dilemma through improving home-based care. Han and Braun (2010) describe their research into using digital technologies to promote active ageing, called ‘digital ageing’ in Korea. Internet Navigator, a computer training program, Cyber-Family and the 1080 Family Online Game Festival are components of their research at Research Institute of Science for the Better Living. These components aim assisting aged people in mastering digital technologies and enhancing their communication modes, leisure activities, and social connectivity. From a healthcare perspective, a research program has been outlined to support family based care for chronic illness (Nguyen, 2010). This author describes conceptual models in understanding information needs of aged patients and family carers as well as identifying key research issues in developing solutions to support aged people and their family cares.

2.4 Summary

The challenge of an ageing population in Vietnam requires a long term, holistic and sustainable approach. Previous studies tend to provide an overall description of the demographic, social, financial, healthcare and living conditions of the elderly, thus inform policy development. We believe that further steps in the development of aged care in Vietnam should take advantage of technology advancement. As majority of aged people reside with or near by their children and grandchildren rather than in aged care facilities, we believe that until nursing homes are more culturally acceptable, more support for home-based care should be developed. Exploratory research to gain a rich understanding of the current practice is required to define directions for the introduction of technologies in a culturally acceptable and effective way. This paper reports an investigation into healthcare for the elderly, one aspect of aged care, as part of a large research program to develop health information systems for aged care. We seek to gain a good understanding of how the Vietnamese elderly perceive about their health status and their healthcare practices. Such an understanding will be useful in shaping directions for developing health information systems that would be appropriate for aged care in Vietnam.

3 RESEARCH APPROACH

Secondary data analysis was adopted. Researchers in epidemiology and public health often conduct secondary data analysis. Secondary data are data collected previously by other researchers and often for other purposes. Secondary data analysis offers researchers with both advantages as well as exposes them to disadvantages. Advantages include economy, i.e. low cost and resource required in

data collection; the breadth of available data, i.e. access to a large scale and longitudinal data sources; and access to professionally collected data, which might not be feasible or efficient to collect for a small research project (Boslaugh, 2007). Disadvantages of secondary data analysis include a difficulty in finding relevant and quality data for the research purpose, the researcher's low familiarity with data due to his/her lack of understanding of and control over the data collection process, availability of data and reluctance in data sharing by other researchers, and a limited opportunity to explore new research issues not covered during the original data collection process (Boslaugh, 2007; Kiecolt and Nathan, 1985).

Secondary data analysis requires the researchers to locate data relevant to the research purpose, select appropriate data analysis methods, and carefully draw findings upon them. We re-examined data collected from a survey with aged people. The survey was conducted by Vietnamese Research Institute for the Elderly during the period between 2004 and 2005 (Nguyen, 2006). 979 participants, who took part in the survey, lived in Ho Chi Minh City (194), and for other provinces including Kon Tum (199), Quang Nam (197), Thanh Hoa (192), and Son La (197). Data collection was conducted through structured interviews with the individual participants about their demographic details, health status, choice of healthcare providers, and other concerns related to healthcare services received such as quality and cost. A number of in-depth interviews and focus groups were conducted with aged participants to further explore a number of issues, such as why they chose to self-care rather than seeking professional healthcare. An analysis of health and healthcare across different demographic groups can be found elsewhere (Nguyen, 2006; 2009). In this paper, health and healthcare related data were re-examined with a focus to identify the perception about health status and current healthcare (self-care) practices of the participants. Descriptive statistics and thematic analyses were used to analyse the selected quantitative and qualitative data respectively. A similar approach was employed to re-examine United Nations and Vietnamese Census data by previous researchers when examining the elderly population in Vietnam (Giang and Pfau, 2007; Friedman et al., 2003).

4 HEALTH AND HEALTHCARE FOR THE ELDERLY

4.1 Health status of the elderly as perceived by them

Only 10% of the survey participants rated their health as good. About half of the participants rated their health as average. A large proportion, 40%, rated their health as bad (see Table 3). These figures, especially the last one, indicate a common concern about health amongst the Vietnamese elderly. In addition, the health situation of the participants who lived in provinces and Ho Chi Minh City is comparable, with an exception to Son La. The best health statistics were found in Son La province where 80.8% rated their health as average and good, only 19.3% rather their health as poor. This is much lower than the overall proportion of about 40% rating their health poor.

More than half of the participants (52.9%) said they were suffering from an illness at least. The

Table 3. Frequency (in percent) of participants rating their health

Health condition	Province					Proportion to the total population
	Quảng Nam	HCM City	Thanh Hoá	Son La	Kon Tum	
Good	11.7	7.2	14.6	16.8	6.0	11.2
Average	41.1	51.0	46.9	64.0	46.2	49.8
Bad	47.2	41.8	38.5	19.3	47.7	38.9
Total (individual location)	100.0	100.0	100.0	100.0	100.0	99.9*

proportion of elderly suffering illnesses tended to increase with age, reaching 64.6% amongst the age group of 75-79 before surprisingly decreasing. The group 80 plus showed the lowest illness rate of 48.3%. People survived this stage tended to accept and felt good about their health.

The most common illnesses reported by the participants included bone-related diseases, cardiovascular disease and blood pressure (Table 4). 53.1% of the participants reported a bone and joint related disease making it the most common disease. The second most common disease was cardiovascular disease 38.5% of the participants and the third most common disease was blood pressure 23.2%. Ho Chi Minh City had the highest rate of participants suffering from cardio vascular (61.2%) and blood pressure (40.1%) much higher than in other provinces. Compared to other provinces, Quang Nam had the highest rates of participants suffering from respiratory (61.2%) and old wound related conditions (14.6%) and Kon Tum had the highest rate of elderly suffering respiratory diseases (33.9%). Other diseases had much lower rates of occurrence, with few differences across locations.

Table 4. Frequency (in percent) of elderly reporting diseases they suffered

Disease of concern	Quảng Nam	Ho Chi Minh City	Thanh Hoá	Son La	Kon Tum	Total
Professional (Occupational disease)	0.9	3.3	4.2	3.2	0	2.5
Dioxin	6.0	2.0	2.1	0	1.7	2.5
Old wound related	14.7	5.3	9.5	5.3	8.5	8.5
Cardiovascular	34.5	61.2	22.1	38.9	13.6	38.5
Blood pressure	13.8	40.1	13.7	20.0	18.6	23.2
Respiratory	12.9	15.8	8.4	13.7	33.9	13.7
Psychophysiological	9.5	2.0	28.4	22.1	15.3	13.7
Bone and joint	61.2	59.2	41.1	52.6	44.1	53.1
Other	13.8	10.5	15.8	13.7	3.4	12.0

Note: Some people reported more than one disease, some reported none.

The cardiovascular and blood pressure conditions were common in the elderly in business and service industry. Over 60% of those in business and over 45% of those in service industry suffered these conditions. The participants in agriculture had lower rates with 15.1% suffering cardiovascular disease and 27.1% suffering blood pressure problems. However, bone and joint problems were found the most common disease (48.2%) within this group. In terms of marriage status, single elderly had higher disease rates than the married couples. For example, cardiovascular disease was found in 33.3% of legally separated elderly, 32.0% of widowed elderly, and 21.7% of still married elderly.

Overall, health of the elderly depends on the socio-economic conditions of each area. Exceptions were found. For example, Mr. NVT, aged 67, of Yen Trung commune, Yen Dinh district, Thanh Hoa province, enjoyed better living conditions, while his health was quite poor due to limited mobility. In contrast, Mr. TDH of the same age endured hard conditions but was in very good health and was even able to do farm work. Nonetheless, health and chronic illness were major concerns as perceived by the participating elderly. Common illnesses suggest that some health information topics (illness and treatment) would be more frequently required and useful for the elderly.

4.2 Professional healthcare preferences

Choices of care and treatment providers for people when seeking professional healthcare included: hospitals, medical stations (i.e. public medical clinics), private medical foundations (i.e. private medical clinics), or private doctors (often home offices). Overall, about 68% of the participants

preferred hospitals (see Table 5). About a quarter of them preferred medical clinics. Only a small proportion of 7% preferred the other types of healthcare providers.

Table 5: Preferred healthcare providers

Preferred Place	Count	Frequency (%)
Hospital	627	68.2
Medical Station	228	24.8
Private Medical Foundation	55	6.0
Private Doctor	9	1.0
Total	919	100.0

Preference for healthcare providers varied across different geographic places. Son La had the highest proportion of participants preferring hospitals (93.5%). The second highest proportion of participants preferring hospitals (79.0%) was found in Ho Chi Minh City. Kon Tum (a rural area) had the lowest rate of hospital preferences of 33.5%. A medical station was the most common choice for the elderly in Kon Tum (66.5%) and was least preferable in Quang Nam (15.3%). Private medical foundations and private doctors are not available or are expensive for the elderly in rural areas. Only 1.1% in Son La and 0% in Kon Tum preferred private medical foundations for check-ups where as 15.1% of the elderly in Ho Chi Minh city preferred private medical foundations. Overall, only 1.0% of all elderly chose private doctors.

Hospitals, while found preferable by majority, were found to be convenient only for the elderly in urban settings. The elderly in rural areas tended to use small local clinics (commune medical dispensaries). Mr. CDM, 65 years of age, of Hai Nhan commune (Thanh Hoa) stated: *“When I am ill, I often go to the commune medical station to be examined. Once I had an illness that got more serious, and I needed to be transferred to a hospital in a suburban district, but they said that I wouldn’t be allowed to go there because the commune medical station was in charge of taking care of people like me.”* Therefore, access to hospital is a concern.

Not only hospital healthcare services were most preferable by the elderly in this study, but also they were the most commonly used. The elderly who received hospital treatment were mostly from the age groups 70-74 and 75-79 (making up 41.62% of the elderly who preferred hospitals). Treatment in local commune medical stations rose sharply from the age group 75-79 (19.8%) to the age group 80 and over (30.4%). Interestingly, the younger elderly 60-74 received treatment from private medical foundations more often than other age groups. Only 3.6% of elderly aged 75-79 received healthcare services from private doctors. Most of these come from a family with high income.

Among the elderly who preferred hospital healthcare services, the highest hospital attendance rate was found among former office workers (87.3%) and those involved in business (80.4%). Farmers attended hospitals at a rate of only 58.3% and attended commune medical stations at a rate of 34.7%. Attendance at private clinics was mostly recorded among those elderly in small-scale industries (33.3%). Healthcare cost was found an important factor in their decision-making. Despite all these proportions, the elderly tended to seek professional care only when their health status became serious.

4.3 Home-based care: Family care and self-care

While hospital care was the most preferable compared to other care providers, the elderly only went to the hospital when they felt that they had a serious disease. Family care and self-care were widespread among the elderly. The elderly and their family carers often purchased and took medicine without their doctor’s advice. Reasons for this practice include low cost, long distance to hospital, and preference for self-care.

Table 6 lists types of first care received by the elderly when they get sick. Almost three quarters of the elderly received care at home from their extended family. 22% of them practiced self-care. Widowed elderly and married elderly received care from their extended family with the proportions of 82.3%

and 75.0%, respectively. 22.5% of married elderly and 16.8% of widowed elderly had to rely on self-care every time they got sick. This situation can constitute a serious concern for the individuals who live on their own.

Table 6. Types of home-based care received when suffering from illness

Types of Care Received	Count	Frequency (%)
Care received from children	696	74.2
Self-care	206	22.0
Care received from friends or others	20	2.1
Hiring a housemaid	5	0.5
Unknown	11	1.2
Total (answered the question)	938	100.0

Treatment cost and long distance between home and hospital were seen as two major obstacles discouraging the elderly to receive professional health care at hospitals or medical stations. Cost was reported as one of the deciding factors in preventing the elderly, 58.8% in Kon Tum, 40% in Thanh Hoa, 31% in Ho Chi Minh City and 16.7% in Quang Nam, from receiving professional healthcare. 26.1% of the elderly in Son La and 64.7% in Kon Tum reported that distance was a significant reason discouraging them to seek professional healthcare. In Son La, 73.9% of elderly people relied on self-care (self-treatment) when suffering illnesses. Mr. LVS (Son La) stated: *“We elderly don’t have any system of medical health care. Sometimes, organizations will hold health examinations for us, but because of the distance, anyone who wants to take the examination has to spend money to get there, and in fact, it is much more than the cost for medicines”*.

Surprisingly, the elderly with education also tended to adopt self-treatment. Half of the elderly with university education purchased medications in self-care. Over 40% of the elderly with high school education in this study also preferred self-care. 22.2% of illiterate elderly preferred self-care due to high costs of medical services. Personal preference for self-care, long distance to hospitals and medical clinics, and medical cost, were three most cited reasons for their self-care practice across the retirees from business, industry and farmers.

Across different age groups, the rate of elderly who preferred self-care to seeking professional care was quite high and was not significantly different from one group to another. The highest self-care proportion was found among the age group of 70-74 (42.9%). Among the age groups of 60-64 and those over 80 the rate was similar 36.8%. The answers *“too far”* and *“lack of money”* were also cited by 40% of all elderly interviewed.

Qualitative data also confirmed that long distance, lack of money and preference for self-care were the three main reasons that the elderly in this survey didn’t seek professional care at first place. Self-treatment was the most often cited. Interestingly, traditional medicine was found as their first option when people feel sick. One interviewee said, *“I don’t need to go to a medical centre when I have an illness. I just find some herbs in the forest if the illness is not too serious. I only go to the commune medical station if it gets more serious”*.

Furthermore, qualitative data also revealed more reasons behind the preference for self-care and home-based care practice. Most of the elderly interviewed believed that the quality of health services provided by professional healthcare providers was mediocre. In their perception, the patient must bribe the doctor into giving them timely and high quality health care. Therefore the elderly, especially those in rural areas, relied on their own previous experience with using medications to self-care as the

first option. The elderly and their family carers should be more informed in practicing home based care.

4.4 Discussion

First, while a majority of the participants saw themselves in average health or better, more than half of them suffered from one illness at least. The most common diseases affecting the elderly are chronic and include bone and joint related problems, cardiovascular disease, problems with blood pressure, respiratory diseases, psycho-physiological diseases, digestive problems, and sense-related problems. Among these, cardiovascular disease and blood pressure are the most common in urban areas whereas bone and joint related problems are the most common in rural settings. Therefore, the elderly in different locations would require health information about diseases, especially those commonly found in their areas, for different purposes of prevention, self-care, and accessing professional healthcare. Further, an opportunity exists to explore health information systems and engage and support the elderly and their families in chronic care.

Second, while hospital services as well as private health services were possible choices for the elderly in urban areas because they were accessible to and affordable for them, the elderly in rural areas had to go to commune medical stations for check-up and treatment services. Tele-medicine and tele-health can be possible but would take a long time to come. Health education and access to professional care for the elderly in rural areas need to be addressed and improved.

Third, home-based care received from family and self-care was found widespread as the first option when the elderly suffered an illness. The elderly sought professional healthcare only when they ‘felt’ they had a serious illness. Using a combination of traditional herbs and Western medications without doctor advice was found common in self-care and care received from family carers. Various reasons for such home-based healthcare practice of the elderly and their families include their preference for self-care, high medical cost, and difficulty to access the hospital care due to long distance, and their perceptions about low care quality and a bribery problem. Further, such home-based care practice ‘fits’ with strong the family structure and relations scribed in the Confucius philosophy and culture. The preference for and popular practice of home-based care suggests that this form of care be guided and conducted in an informed manner. Health literacy, illness and drug information, treatment options, self-care instructions, and carer training should be included in health information systems to support home-based care, especially for chronic care, i.e. care for chronic illnesses. Health information systems should also facilitate collaborative care between healthcare professionals and family carers. As the elderly and their family carers take a proactive role in healthcare, consumer health informatics can be a promising direction in Vietnam.

While limitations of this study include the sample size of 997 participants in five selected cities and provinces, the use of secondary data, and the health scope of the analysis, the results are consistent with and strengthen findings from previous surveys (UnitedNations, 2007; Giang and Pfau, 2007; Friedman et al., 2003) about the family co-residence (or near-by residence) of the Vietnamese elderly, their health status and chronic illnesses, and forms of support received from families. In addition, our analysis describes their preferences for and widespread practice of family care and self-care. The elderly choose professional care providers when things become serious. These findings also confirm a strong influence of culture, the Confucian family relationships as well as a belief in traditional medicines. Such cultural values need to be taken into account when developing health information systems for aged care in Vietnam.

In summary, common chronic illnesses, lacking of an established aged care infrastructure, low accessible resources, and self-care practice are key challenges. The cultural value, strong family structure and their support in home-based care can be seen as facilitators in developing community aged care. With a rapid uptake of technologies by young family carers, opportunities exist to explore consumer health informatics in collaborative and chronic care for the elderly in Vietnam.

5 INTEGRATING TECHNOLOGIES WITHIN AGED CARE IN VIETNAM

As the Law on the Elderly has recently passed the Vietnamese Parliament and will take effect from 1st July in 2010, there will be more developments in aged care in near future. New policies, public health systems, and aged care infrastructures and services will be upgraded and developed. In this context, our study suggests that an exploration and introduction of health information systems to support and promote health education, disease prevention, and chronic disease management would be appropriate in Vietnam. Further studies will be required to identify and examine opportunities and barriers to support home based care, self-care and collaborative care using health informatics tools. ICT skills training for aged care staff should also be required.

Our immediate and future research directions include both conceptual development and empirical investigations. We synthesise concepts and recent findings from different disciplines including health informatics, especially consumers health informatics (Logan and Tse, 2007; Eysenbach, 2000), aged care research (Soar et al., 2010; Nay and Garratt, 2005), and cultural dimensions (Hofstede, 2001) to develop a framework to explore health care information systems to support the Vietnamese elderly and their family carers. For example, considering the uptake of the Internet and mobile phones by young generations who are potential family carers in urban settings, health education, disease prevention and chronic disease management can be promoted and supported through various Web-based and mobile phone applications. Such applications can also direct people to their local professional healthcare providers. Integrating assistive technologies to enable home based health monitoring and collaborative chronic care can be useful. Empirical studies will be conducted to examine how family carers and young old people (those reaching retirement or recently retired) utilise health Web sites and mobile phones to search for information about illness, symptoms, treatment options, traditional and modern medicines, and communicate with other patients, carers as well as doctors.

Studies into other aspects of aged care such as social needs and social life, the dissemination of policies and service information to the public will also be included.

Acknowledgment

The authors would like to give special thanks to Dr. Tat To Ngo (Ph.D.), Dean of Dong Do University, Hanoi, Vietnam, for his encouragement and support for our collaborative work.

References

- Barton, S. M., Corbitt, B. and Nguyen, L. (2009). "Academic social networks affecting the adoption of e-learning in Turkey (2009)." *International Journal on E-Learning* 8(4): 561-575.
- Boslaugh, S. (2007). *An Introduction to secondary data analysis. Secondary Data Sources for Public Health: A Practical Guide*. Cambridge, Cambridge University Press 1-11.
- Corbitt, B. J., Peszynski, K. J., Inthanond, S., Hill, B. and Thanasankit, T. (2004). "Cultural Differences, Information and Code Systems." *Journal of Global Information Management* 15(3): pp 65-85.
- Eysenbach, G. (2000). "Consumer health informatics." *BMJ* 320(7251): 1713-1716.
- Friedman, J., Goodkind, D., Cuong, B. T. and Anh, T. S. (2001). "Work and Retirement among the Elderly in Vietnam." *Research on Aging* 23(2): 209-232.
- Friedman, J., Knodel, J., Bui, C. T. and Truong, A. S. (2003). "Gender Dimensions of Support for Elderly in Vietnam." *Research on Aging* 25(6): 578-630.
- General Statistics Office (2006). *Results of the Vietnam household living standards survey 2006*. Statistics publisher (Nhà Xuất Bản Thống Kê), Hanoi, Vietnam.
- General Statistics Office (2009). *The 2008 population change, labour force and family planning survey: major findings*. Statistics publisher (Nhà Xuất Bản Thống Kê), Hanoi, Vietnam.

- Giang, T. L. (2004). The Pension Scheme in Vietnam: Current Status and Challenges in an Aging Society. MPRA Paper 969. Germany, University Library of Munich.
- Giang, T. L. and Pfau, W. D. (2007). The Elderly Population in Vietnam during Economic Transformation: An Overview. Social Issues under Economic Transformation and Integration in Vietnam T. L. Giang and K. H. Duong. Hanoi, Vietnam Development Forum. 1: 185-210.
- Han, D. and Braun, K. L. (2010). Promoting Active Ageing through Technology Training in Korea. Forthcoming chapter in Intelligent Technologies for the Aged: The Grey Digital Divide. J. Soar, R. Swindell and T. Tsang.
- Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations, Sage, Thousand Oaks.
- Kiecolt, K. J. and Nathan, L. E. (1985). Introduction. Secondary analysis of survey data, Sage Publications: 9-12.
- Logan, R. A. and Tse, T. (2007). "A multidiscipline conceptual framework for consumer health informatics." Studies in Health Technology and Informatics 29 (Part 2): 1169-1173.
- Nay, R. and Garratt, S. (2005). Nursing older people – Issues and innovations. Churchill Livingstone, Elsevier.
- Nguyen, L. (2010). Supporting Family-based Care for Aged Patients with Chronic Illness, In forthcoming book Intelligent Technologies for the Aged: The Grey Digital Divide. J. Soar, R. Swindell and T. Tsang, IGI Global.
- Nguyen, L., Shanks, G., Vetere, F. and Howard, S. (2008). "Information systems and healthcare XXVIII: The information needs of family carers in collaborative healthcare." Communications of the Association for Information Systems 23(10).
- Nguyen, T. H. (2006). "Chăm sóc sức khỏe người cao tuổi." Dân số & Phát triển, General Office for Population and Family Planning 67(10).
- Nguyen, T. H. (2008). "Chất lượng dân số cao tuổi ở Việt Nam." Tạp chí Cộng sản 163(19).
- Nguyen, T. H. (2009). An aging population and health problem. Hanoi, Vietnam, Vietnamese Elderly Research Institute.
- Vietnamese Parliament on-line (2009). "The Elderly Law." Last access 1 March 2010, <http://duthaoonline.quochoi.vn/>
- Vietnamese Financial Review (2008). "Industry report." Last access 1 March 2010 <http://www.vfr.vn/industry-report/november-2.html>
- Soar, J., Swindell, R. and Tsang, T. (2010). Intelligent Technologies for the Aged: The Grey Digital Divide, IGI Global.
- Thanasankit, T. and Corbitt, B. (1999). "Cultural context and its impact on requirements elicitation in Thailand." Electronic Journal on Information Systems in Developing Countries 1(1): 15-32.
- United Nations (2007). Country Statement - Vietnam. Seminar on the Social, Health and Economic Consequences of Population Ageing in the Context of Changing Families, Bangkok, Thailand, United Nations Economic and social commission for Asia and the Pacific, United Nations population fund, Department of Economic and Social Affairs.
- United Nations (2009). World Population Prospects: The 2008 Revision, Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, <http://data.un.org/>.
- Wang, S.-Y. Z. (2010). Assistive Technologies as aids to family caregivers in Taiwan. Forthcoming chapter in Intelligent Technologies for the Aged: The Grey Digital Divide. J. Soar, R. Swindell and T. Tsang.
- Yao, X. (2000). An Introduction to Confucianism. Cambridge, Cambridge University Press.