

Investigating determinants of quality of life: The case of older people in Ho Chi Minh City

Vu Bich Ngoc¹, Nguyen Le Hoang Thuy To Quyen^{1*}

¹Ho Chi Minh City Open University, Ho Chi Minh City, Vietnam

*Corresponding author: quyen.nlhtt@ou.edu.vn

ARTICLE INFO

DOI:10.46223/HCMCOUJS.soci.en.13.1.2593.2023

Received: November 25th, 2022

Revised: December 14th, 2022

Accepted: February 28th, 2023

Keywords:

EFA; health; linear regression; quality of life; social capital

ABSTRACT

This study was conducted to investigate the factors affecting the quality of life in terms of the health of the elderly in Ho Chi Minh City (HCMC), Vietnam. Health production theory was used to form the analytical framework for the study. The data set of 300 surveyed elderly people, which was randomly drawn from the list of 841,000 older people in HCMC by Excel random function, was used for quantitative analysis, including Exploratory Factor Analysis (EFA) and linear regression. Research results show that gender and marital status are not statistically significant while education, employment, bonding, bridging, and linking social capital statistically significant impact on the quality of life of the elderly. Specifically, the level of education improves the quality of life while employment reduces the quality of life. This finding is an important implication for policies related to the retirement age of employees. The research results have also provided empirical evidence on the potential of social capital, a resource existing in the network of relationships, in improving the quality of life besides other traditional resources. This finding is an important basis for policymakers in mobilizing social capital resources in the context of resource scarcity.

1. Introduction

The world has experienced a period of leaps and bounds in aging population growth, both in absolute and relative terms. If in 1950, the elderly (people aged 60 and over) were only approximately 200 million people, accounting for 8% of the world population, by 2011, this number had increased to 760 million people, accounting for 11% of the world population. It is forecasted that by 2050, the proportion of the elderly population will reach 3 billion people, accounting for 22% of the world population (World Economic Forum, 2011). Population aging is a global phenomenon and one of the most important trends of the 21st century (UNFPA & HelpAge International, 2012). This is a major challenge for countries, facing rising healthcare costs, shrinking workforces, pension burden, and falling birth rates. To address this situation, some countries have raised the retirement age, and reduced benefits and care costs for the elderly, affecting their quality of life (Hering, 2013). Therefore, the most urgent issue today is to proactively find solutions to cope with the change in population structure towards aging in order to reduce the burden of society, especially in terms of health. Vietnam is no exception. According to the General Statistics Office (2020), Vietnam's elderly population is forecasted to increase very quickly, nearly 2.27 times in the next 20 years, specifically from 7.4 million (2019) to 16.8 million (2039). Vietnam is one of the countries in Asia with a high rate of population

aging (Vo, Vo, Watanapongvanich, & Witvorapong, 2019). In 2019, the aging rate is 48.8%, it is forecasted that by 2069, this number will triple, reaching 154.3%. For a country facing the risk of “not getting rich and getting old” like Vietnam, a huge challenge in terms of labor structure, health system, and social security policies is foreseen. Another problem in Vietnam is the very low quality of life in terms of health among the elderly (Campbell, 2011). Therefore, the study of the quality of life in terms of the health of the elderly becomes a leading policy concern (Vo et al., 2019).

Ho Chi Minh City is one of the largest economic centers, dynamic development and economic driver of the country (Nguyen & Hoang, 2016). Ho Chi Minh City has an area of 2,095.39 km², divided into 16 urban districts, 05 rural districts, and 01 city within the city, with a population of more than 9 million people and an average population density of 4,375 people/km² (General Statistics Office, 2021). Currently, in Ho Chi Minh City, there are 841,000 elderly people (ranked second in the country), accounting for 9.35% (Ho Chi Minh City Department of Population and Family Planning, 2020).

In the context of non-communicable diseases being the leading cause of death for both men and women over the age of 50 in Vietnam (Vu et al., 2020), it is essential to study the quality of life focusing on the health aspect of the elderly. The proportion of elderly people in Vietnam receiving social benefits is small because only people aged 80 years or older or homeless elderly people are entitled to the benefits. This shows that the elderly mainly rely on their own resources and the community. Social capital is one of those resources. With the special context of Ho Chi Minh City, this study is a typical case of the quality of life of the elderly in large urban areas in the low-middle income group (World Bank, 2022). Responding to the current circumstances, this study investigates the health-related quality of life of older people in Ho Chi Minh City by answering the questions: 1) which factors impact the health-related life quality of the elderly, 2) how do various types of social capital influence on the health-related life quality of the elderly and 3) which specific implications can be drawn from the research findings?

This study contributes theoretically and practically in the following four aspects. Firstly, the study focuses on measuring the quality of life in terms of the health of the elderly in HCMC. Secondly, this study explores the role of factors belonging to personal and community resources on the quality of life in terms of the health of the elderly. Thirdly, the study provides practical evidence on the role of social capital, a special resource, that should be exploited in the context of scarcity of other resources to improve the quality of life in terms of the health of the elderly. Finally, the findings imply that employment causes a decrease in health-related quality of life. This is an important implication for the retirement age policy of employees.

The article is structured into 05 parts. Following the introduction, part 2 focuses on the theoretical basis and proposes a research model. Research methodology is introduced in section 3. Section 4 analyzes the research results, section 5 discusses the research results and section 6 ends with the conclusions.

2. Literature review

2.1. Concept definitions

2.1.1. The older people

Developed countries often choose 65 years of age as the criterion to determine the elderly. However, this criterion is not common in developing and underdeveloped countries. Due

to the lack of a unified definition, researchers in this field tend to use the retirement age set by the government of each country as a benchmark to identify the elderly (Roebuck, 1979).

In statistics, reports, and studies on Vietnam, the milestone of 60 years and older is chosen when referring to the elderly (Campbell, 2011; General Statistics Office, 2011). The Vietnamese government also chooses this threshold as a basis in the Law on the Elderly (National Assembly, 2009). Therefore, in this study, the definition of older people refers to those who are 60 years of age or older.

2.1.2. Quality of life

Quality of life is a common concept, with various definitions related to philosophy, politics, and health (Fallowfield, 2009). According to the World Health Organization, quality of life is an individual's perception of their life in the context of the culture and value system in which they live and in relation to their goals, their expectations, standards, and concerns (World Health Organization, 1998). For the elderly in Vietnam, the quality of life in terms of health is a matter of concern and improvement (Campbell, 2011). The health-related quality of life of older adults can be described in terms of functional status, independence, and ability to participate in life activities (Cleary & Howell, 2006). Thus, the concept of quality of life when operationalizing human health indicators, includes emotional, social, and physical aspects of personal life.

2.2. Theoretical framework and factors influencing the quality of life in terms of health

Social sciences and public health rely on the household production of health to understand the decisions made by individuals and household relating to health-producing behaviours (Schumann & Mosley, 1994). According to Goodman, Stano, and Tilford (1999), Michael Grossman's health production theory has provided significant insights into the allocation of resources for health and non-health commodities. This provides the framework for health-related quality of life research. Therefore, Grossman's health production theory (Grossman, 1972) was selected as the basic theory for this empirical study.

2.2.1. Health production theory

Grossman's theory of health production is applied to construct the following utility function (Grossman, 1972):

$$U_i = U(H_i, Z_i) \quad (1)$$

Of which:

H_i is the health capital;

Z_i is the consumption of other goods.

The assumption of the health production function of Folland (2008) is as follows:

$$H_i = H(HI) \quad (2)$$

Where: HI is the input of health production.

Assume that each individual will choose for himself the combination of inputs for the utility function and the maximum utility gave the following budget (B) and time constraints:

$$\text{Max } U_i = U(H_i, Z_i) \quad (3)$$

Subjective to: $H_i = H(HI)$

$$pH_i + Z_i = B$$

2.2.2. Empirical evidences on the determinants of quality of life in terms of health

The social capital theory has the core idea that social relationships and their benefits improve the quality of life. According to Putnam (2000a), the role of social capital in improving health and happiness has been found in empirical studies, the research results all come to the conclusion that social capital should be considered as a fourth source of capital besides other traditional capital sources such as natural capital, physical capital, and human capital.

Social capital is a multidimensional concept, approached in different dimensions by previous studies, depending on the context and research objectives. Social capital is defined by Hanifan (1916) as goodwill, friendship, sympathy, and social relations within groups and families. Coleman (1988) has considered social capital as a resource derived from beliefs, norms, and networks. Fukuyama (2000) added the trust dimension as a dimension of social capital. Putnam (2000b) measured this variable through the community activity of citizens. Other researchers such as Burt (2000), and Lin (2001) approached social capital at the individual level when defining this concept. Types of social capital, including bonding, bridging, and linking (Norstrand & Xu, 2012) have positive effects on quality of life in terms of health, namely reducing mortality (Kawachi, Kennedy, Lochner, & Stith, 1997; Lochner, Kawachi, Brennan, & Buka, 2003; Wilkinson, Kawachi, & Kennedy, 1998), improved mental health (Hamano, Fujisawa, Ishida, Subramanian, & Kawachi, 2010; Welsh & Berry, 2009), reduced depression (Lin, Ye, & Ensel, 1999), improved loss of memory (Fratiglioni, Wang, Ericsson, Maytan, & Winbland, 2000), increased life satisfaction (Helliwell, 2003), positive impact on perceived health (Kim, 2013; Rocco & Suhrcke, 012). Moreover, social capital also helps the elimination of diseases such as cardiovascular disease (Kim, Kawachi, Vander Hoorn, & Ezzati, 2008), and HIV (Williams, Campbell, & MacPhail, 1999). In fact, people with good social relationships are more likely to share information, respect norms, and standards, and lead a healthier lifestyle (Kawachi et al., 1997; Kawachi, Kennedy, & Glass, 1999). In addition, cross-country and continental studies also show consistent results of social capital roles in health. Although the impact of each social capital indicator on health varies from country to country, overall, social capital has a positive impact on perceived health.

According to Ventegodt, Merrick, and Andersen (2003), Maslow's 08 needs include the following factors: physiological needs, safety needs, the need for love (or belonging to someone), need for esteem or being acknowledged; the need for knowledge and understanding, the need for creativity, the need for self-actualization, and the need for transcendence in order to help patients develop plans, fulfill their own needs to improve quality of life. Thus, the potential to improve one's quality of life is basically composed of the following elements: love and care; respect; knowledge; creativity, and ultimately life's mission. When the person achieves the above factors, the individual will feel happy. Tajvar, Arab, and Montazeri (2008) clarified factors affecting the quality of life of the elderly in terms of health including gender, age, economic status, education, and marital status when studying older adults in Iran. These findings are also quite similar to the studies of Bond and Corner (2004), Ghamari (2013) and Punta, Somrongthong, and Kumar (2019). Thus, the proposed research model is shown in Figure 1.

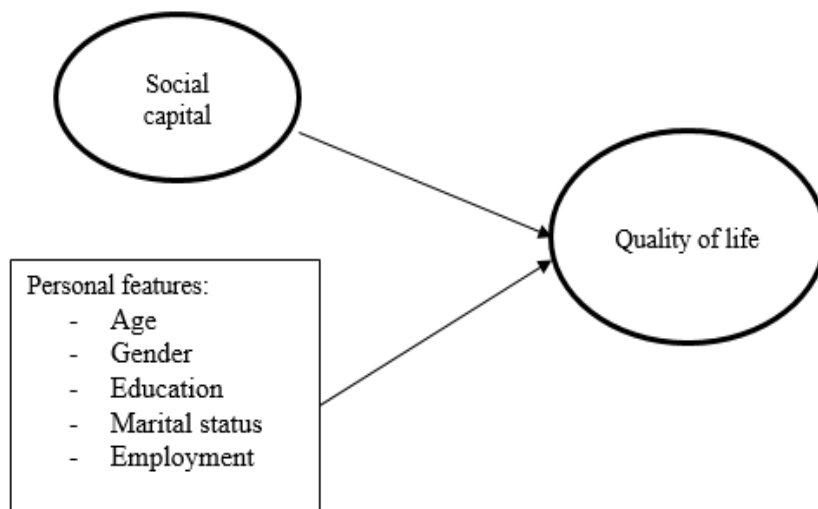


Figure 1. Proposed analytical framework

2.3. Hypotheses development

2.3.1. Social capital and health-related quality of life of the older people

According to Gallicchio, Hoffman, and Helzlsouer (2007), social capital, measured by the level of social support, determined the health-related quality of life. Moreover, individuals with under two close friends were associated with a statistical decrease in the probability of reported good health-related quality of life compared to those having over 10 close friends. Farquhar (1995) also concluded that social contacts were valued predictors of quality of life in terms of health status measures. Similarly, Eriksson, Dahlgren, Janlert, Weinehall, and Emmelin (2010) have reported that individuals with cognitive and structural social capital have got a higher propensity of good health compared to those who fail to approach social capital.

Based on the literature, the relationship between social capital and health is concluded to be positive. Empirical studies have supported the positive effects of social capital on health. People with more social capital have a higher quality of life than people with less social capital. It affects the life quality of the elderly in terms of mental health and perceived health through 03 functions of bonding, bridging, and linking. Thus, the following hypothesis is proposed:

H1: Bonding, bridging, and linking social capital have positive effects on the health dimension quality of life of the older people

2.3.2. Personal features and health-related quality of life of the older people

Soósová (2016) assesses the impact of demographic (gender and age) on the elderly quality of life in the Kosice region, Slovakia. The study revealed that female was the best predictor of quality of life in term of sensory abilities. However, a lower average score of physical health was found in females. In contrast, the lower quality of life experienced by men has been confirmed by Zaninotto, Falaschetti, and Sacker (2009) when analyzing the panel data of 11,392 individuals aged 50 and over in England. Therefore, the proposed hypothesis of gender effect is as follows;

H2: Gender has an effect on the health dimension quality of life of the older people

In connection with increasing age, Zaninotto et al. (2009) found that the quality of life at baseline was poorer. However, Mercier, Peladeau, and Tempier (1998) reported poorer quality of life perceived by the younger compared to the older respondents, using multiple regression analysis. Therefore, the following hypothesis is proposed;

H3: Age has an effect on health-related quality of life of the older people

Relating to the socio-economic (marital status, education, income) impact on health-related quality of life, Soósová (2016) reported the negative influence of living without a partner on quality of life in the linear regression model. In fact, the loss of a partner is a traumatic experience (Dahlberg & McKee, 2014). Zaninotto et al. (2009) also found better quality of life among those who live in a partnership. Hence, the coming hypothesis is;

H4: Living in partnership has a positive impact on health-related quality of life of the older people

Bilgili and Arpacı (2014) found education was the critical factor that predicted the quality of life of the older adults in Turkey. Those with secondary schools of less education experienced a poorer quality of life compared to their counterparts with high school education. The same results have been found in a study carried out in Brazil (Alexandre, Cordeiro, & Ramos, 2009), Ireland (Layte, Sexton, & Savva, 2013). As a result, the hypothesis is below;

H5: Education has a positive effect on health-related quality of life of the older people

Min and Cho (2018) found that employment led to a higher quality of life when analyzing the life quality pattern of the job loss group and job retention group among 526 older adults in Korea. Further investigation on employment roles has been investigated by Choi and Bum (2019). The older people in Korea participating in the study was categorized into three sub-groups: i) only physical leisure activity, ii) only work and iii) both physical leisure activity and work. The findings revealed the best life quality score of the third group. Therefore, the proposed hypothesis for the study is as follows;

H6: Employment has positive effect on health related quality of life of the older people

3. Research methodology

3.1. Qualitative method

The literature review is the foundation for proposing the variables operationalization in the research model. The social capital measurement in this study is based on the one used in the Vietnam Access to Resources Household Survey (VARHS). After that, discussions with experts were conducted to calibrate the scale to suit the context of the elderly, serving to modify a structured questionnaire which was relied on literature and VARHS to conduct surveys and collect data for the quantitative analysis. In this study, the authors stopped when interviewing 15 experts when no more new ideas were discovered.

3.2. Quantitative method

3.2.1. Sample size and sampling

The survey sample size is calculated based on the formula proposed by Tabachnick and Fidell (1996), namely $N = 50 + 8 * n$, where: n is the number of independent variables. There are 8 independent variables, 01 dependent variable, and 23 observed indicators selected by the authors in this research model, so the minimum sample size for the study is: $N = 50 + 8 * 23 = 234$. In order to reach the higher reliability of the data and to prevent the risk of having invalid and unsatisfactory survey forms, the authors choose a survey sample size of 350 elderly people to conduct interviews.

The study applies the simple random sampling strategy. Based on the list of 841,000 elderly people living in various districts in Ho Chi Minh City, 350 older adults have been drawn, employing a random function on Excel. A pilot has been processed to ensure the proper questionnaire prior to conducting the survey.

3.2.2. Data analysis

Firstly, the reliability of the scale is tested, using Cronbach Alpha. The Cronbach alpha reliability coefficient is usually in the range of 0 - 1. The closer the coefficient is to 1, the higher the consistency of the scale (Gliem & Gliem, 2003). George and Mallery (2003) provide the empirical rule for this coefficient as follows: > 0.9 - Excellent, > 0.8 - Good, > 0.7 - Acceptable, > 0.6 - Questionable, > 0.5 - Weak, and < 0.5 - Not acceptable. Then, exploratory factor analysis (EFA) was performed for dimension reduction. Barlett's test of sphericity is used to see if the observed variables in the factor are correlated with each other or not. The Bartlett test is only statistically significant when Sig. < 0.05. In addition, the KMO coefficient (Kaiser-Meyer-Olkin) needs to satisfy the condition $0.5 \leq \text{KMO} \leq 1$, if $\text{KMO} < 0.5$, factor analysis is not suitable (Leech, Barrett, & Morgan, 2013). Finally, regression analysis is applied to test the research hypotheses.

4. Research findings

4.1. In-depth interviews

Qualitative research was conducted with 15 experts who have experience in the research involved topic to modify the questionnaire which was developed on the basis of literature and VARHS to ensure its appropriateness for the older adults. The selected experts have the knowledge, theoretical and practical understanding of social capital and health-related quality of life of the elderly (Table 1).

Table 1

Summary of experts' interviews

Variables	Description	Quantity	Percentage
Gender	Male	6	40%
	Female	9	60%
Age	30 - 39	8	53.3%
	40 - 49	4	26.7%
	> 50	3	20%
Education	Diploma	1	6.7%
	Undergraduate degree	9	60%
	Post graduate	5	33.3%
Field/major	Sociology	5	33.3%
	Nursing	5	33.3%
	Administrative officers	5	33.4%

Source: Authors' survey (2022)

After analyzing the expert interviews, the results show that the experts agree on the number of observed variables of each factor which was designed based on Norstrand and Xu (2012), VARHS for social capital measurement, and Cleary and Howell (2006) for health-related quality of life measurement. However, the experts also have comments to revise, edit as well as explain the meaning of each indicator as shown in Table 2.

Table 2

Measured variables (scale 1: min-5: max)

No.	Code	Description
Bonding (GK)		
1.	GK1	Visiting relatives
2.	GK2	Visting friends
3.	GK3	Calling relatives, friends/Being called via phone by relatives, friends
4.	GK4	Helping relatives/friends
Bridging (BC)		
5.	BC1	How do you rate your level of communication and making new friends in the past 06 months?
6.	BC2	Rate how often you meet new friends?
7.	BC3	Rate the extent to which you support and help others when facing difficulties?
8.	BC4	Rate the level of peace of mind when living in your locality?
9.	BC5	How do you rate your participation in local social activities (participating in social activities, meeting people's groups, doing charity)?
Linking (KN)		
10.	KN1	How do you rate your participation in political groups (Fatherland Front, Women's Union, Farmers' Union, Veterans Association, Study Promotion Association, Elderly Association) in your locality?
11.	KN2	Evaluate the level of compliance with the regulations of the group that you join?
12.	KN3	Rate the level of a meeting between you and the members of the association/group
13.	KN4	How do you rate your contribution to the associations/groups you join?
14.	KN5	Assess the extent to which you can better contribute ideas to cadres and civil servants who are on duty in the locality?
Health-related quality of life		
15.	CLCS1	Assess whether you are healthy enough to carry out daily activities: washing clothes by yourself, sweeping the house, and taking care of grandchildren, ...
16.	CLCS2	How would you rate your sleep quality?
17.	CLCS3	Rate your own level of anxiety and sadness
18.	CLCS4	Feeling sick more easily than others

Source: Authors' survey (2022)

4.2. Quantitative analysis

The survey was conducted through face-to-face meetings, using a structured questionnaire for the elderly. Three hundred and fifty (350) questionnaires were distributed and 320 responses were obtained, 20 of which were rejected due to lack of information. After the screening, 300 observations were satisfactory for analysis. Table 3 shows the description of the survey sample.

Table 3

Frequency table (n = 300)

Description	Frequency	Valid Percent (%)	Cumulative percent (%)
Gender			
Male	144	48.0	48.0
Female	156	52.0	100.0
Marital status			
Married (living with husband/wife)	199	66.3	66.3
Other	101	33.7	100
Employment			
No	168	56	56
Yes	132	44	100

Source: Authors' survey (2022)

The results of the measurement evaluation in the model in Table 4 show the reliability of the scale through Cronbach's Alpha coefficient. All observed variables met the requirements to perform EFA analysis.

Table 4

Reliability statistics

No.	Description	Items	Cronbach's Alpha	Item-total correlation
1	Bonding	4	0.871	0.807
2	Bridging	5	0.855	0.782
3	Linking	5	0.900	0.858
4	Quality of life	4	0.774	0.656
	Total	18		

Source: Authors' survey (2022)

The results of performing EFA after checking the KMO coefficient, Chi-square statistic of Bartlett test, eigenvalue coefficient, and extracted variance show that there are 03 factors in the model with 18 observed variables as shown in Table 5.

Table 5

EFA results

Items	KN	BC	GK
KN5	0.908		
KN4	0.878		
KN3	0.859		
KN1	0.703		

Items	KN	BC	GK
KN2	0.700		
BC4		0.889	
BC5		0.836	
BC3		0.771	
BC2		0.717	
BC1		0.668	
GK1			0.871
GK2			0.870
GK4			0.762
GK3			0.709
Total	5.698	2.255	1.891
% of variance	40.699	56.807	70.312

Source: Authors' survey (2022)

Diagnostic tests (JB test of normal distribution of residuals, heteroscesasticity, and Ramsey test) have been done to ensure the validity assumption of the regression (Ramsey, 1983). The linear regression results in Table 6 show that the coefficient of determination R^2 is 0.647 and the adjusted R^2 is 0.638. The F-statistic of 66.806 is calculated from the R^2 value of the full model, at the significance level Sig = 0.000. Thus, the given linear regression model is consistent with the research model and data.

Table 6

Model summary

Model	R	R^2	Adjusted R^2	Std.error of the estimate	Change statistics				
					R^2 change	F change	df1	df2	Sig. F
1	0.8805 ^a	0.647	0.638	0.2944827	0.647	66.806	8	291	0.000

Source: Authors' survey (2022)

Table 7

ANOVA

Model		Sum of squares	(df)	Mean square	F	Sig.
1	Regression	46.347	8	5.793	66.806	.000
	Residual	25.236	291	.087		
	Total	71.583	299			

Source: Authors' survey (2022)

The results of testing the role of independent variables in the model of quality of life in terms of the health of the elderly (Table 8) show that gender and marital status are not statistically significant. The remaining factors in the model including: education, employment, bonding social capital, bridging social capital and linking social capital all had a statistically

significant influence on the quality of life. Table 8 also shows that the tolerance of the variables (acceptance) is quite high from 0.732 or more and the VIF coefficient of both factors is less than 2, that is, there is no multicollinearity between the independent variables in the model.

Table 8

Regression results

Model	Variables	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity Statistics	
		Beta	Std.Error	Beta			TOL	VIF
1	(Constant)	0.214	0.252		0.848	0.397		
	Age	0.004	0.003	0.065	1.720	0.086*	0.856	1.169
	Male	0.046	0.036	0.047	1.281	0.201	0.909	1.100
	Married	0.057	0.038	0.056	1.517	0.130	0.892	1.121
	Education	0.019	0.005	0.075	1.983	0.048**	0.849	1.178
	Employment	-0.075	0.036	-0.076	-2.074	0.039**	0.898	1.114
	Bonding	0.236	0.036	0.268	6.577	0.000***	0.732	1.366
	Bridging	0.192	0.034	0.214	5.590	0.000***	0.824	1.213
	Linking	0.444	0.033	0.531	13.265	0.000***	0.756	1.323

Note: (*) 10%; (**) 5%; (***) 1%

Source: Authors' survey (2022)

5. Discussion

The study results showed that there was no difference in quality of life between men and women. A similar result was found for marital status. In addition, the level of education improves the quality of life while the employment of the elderly reduces the quality of life. This finding is an important basis for policies related to the retirement age of the elderly. In particular, research has shown that social capital plays a very important role in improving the quality of life of the elderly.

Linking social capital has the greatest impact on quality of life, with a standardized beta coefficient = 0.531, Sig. = 0.000 < 0.01. This factor is measured by 05 indicators (KN1, KN2, KN3, KN4, KN5). Research results show that when formulating policies for older people, it is necessary to focus on linking social capital because community participation and participation in social activities help older people maintain their health (Cornwell & Harrison, 2004), feel satisfied with their lives and social support improves quality of life. Li, Lin, and Chen (2011) also found that an important factor influencing the successful aging of the population is participation in social activities. Chen, Hicks, and While (2014) also agree and find that the social activities that the elderly participate in has increased in recent years, which is directly proportional to their social support and satisfaction with the quality of life. However, the use of social support should be considered as people may not use their support effectively even when important resources are provided. Taylor et al. (2004) assert that maintaining harmony in social groups is one of the important norms in Asian culture. Therefore, in order for the elderly to have a good quality of life, it is necessary to focus on social activities that the elderly participate in so that they can both contribute to the community and receive benefits, build friendly relationships, and lead a happy and open life.

Bonding social capital is the criterion ranked the second impact ($\beta = 0.268$) on the quality of life of the elderly including 04 measured items (GK1, GK2, GK3, GK4). According to García and Navarro (2018), the support of family or cohabitation is very important for the elderly health as well as social relationships. Socially connected elderly people are more likely to improve their quality of life when they have weekly contact with friends and relatives. In addition, support from friends or neighbors is especially important because it is flexible and provides a better opportunity to understand and share experiences (Lindén-Boström, Persson, & Eriksson, 2010). Therefore, Litwin and Stoeckel (2014) confirm that there is a positive contribution or association between many types of relationships at the same time, namely relationships with family members, friendships based on shared interests, shared personal characteristics, experiences, lifestyles, and external personal relationships to the quality of life of older adults.

Bridging social capital is the third important criterion ($\beta = 0.214$) influencing on the quality of life of the elderly, including 05 observed variables (BC1, BC2, BC3, BC4, BC5). Bridging is a social capital that connects different groups, helps to expand relationships with target groups such as friends, colleagues, and members of organizations and groups, and is characterized by “general trust”. Thus, pathways linking individual activities and well-being include social support from social interactions (Zhang & Chen, 2019), this association can be explained by individuals less engaged and socially trusting are often more easily overlooked, socially isolated, more stressful and, as a result, less healthy (Putnam, 2000a). Lucumi, Gomez, and Brownson (2015) finds that the cognitive aspect of social capital can increase self-esteem, self-satisfaction, and self-confidence in people and subsequently affect health outcomes. Therefore, it is necessary to organize the exchange and study activities so that the elderly have opportunities to meet and make new friends, people with whom they can bring a comfortable feeling when interacting and talking. This new pattern is chosen by the elderly themselves, which improves their quality of life (García & Navarro, 2018).

In summary, the findings of this research are somehow consistent with the theory and research hypotheses on the role of human capital (education) and social capital in health-related quality of life. The most important finding of this research is an implication for effective and efficient employment of social capital with a priority focus on linking, bonding, and bridging in addition to the traditional role of education.

6. Conclusion

The research has finally reached its objectives. In fact, health-related quality of life of the older adults in Ho Chi Minh City has been measured. The role of personal features and social capital in health-related quality of life of older adults have been theoretically implicated in the literature review. The empirical studies have also proven an appropriate selection of variables in the model to explain the health-related quality of life of the elderly in Ho Chi Minh City. Moreover, unlike previous studies, gender and marital status are not significant. This implies the elimination of gender discrimination in the study context. Moreover, the loss of partnership may be crowded out by the gain of big family culture in Vietnam, i.e., four generations live together. Furthermore, the research results have provided important practical evidence on the potential of social capital, existing in a network of relationships in improving quality of life in addition to other traditional elements. This finding is an important basis for policymakers in mobilizing social capital resources in the context of resource scarcity. However, the doubtful question about the reversed impact of health-related quality of life on social capital remains unsolved due to the limitation of cross-sectional data used in this study. Future research with longitudinal data should be executed to test this relationship.

ACKNOWLEDGEMENTS

This research is funded by Ho Chi Minh City Open University under the grant number T2021.01.3.

References

- Alexandre, T. D. S., Cordeiro, R. C., & Ramos, L. R. (2009). Factors associated to quality of life in active elderly. *Revista de Saude Publica*, 43(4), 613-621.
- Bilgili, N., & Arpacı, F. (2014). Quality of life of older adults in Turkey. *Archives of Gerontology and Geriatrics*, 59(2), 415-421.
- Bond, J., & Corner, L. (2004). *Quality of life and older people*. New York, NY: McGraw-Hill Education.
- Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior*, 22(22), 345-423. doi:10.1016/S0191-3085(00)22009-1
- Campbell, B. (2011). *The aging population in Vietnam - Current status, prognosis and possible policy responses*. Retrieved October 10, 2022, from https://vietnam.unfpa.org/sites/default/files/pub-pdf/Ageing%20report_ENG_FINAL_27.07.pdf
- Chen, Y., Hicks, A., & While, A. E. (2014). Loneliness and social support of older people in China: A systematic literature review. *Health & Social Care in the Community*, 22(2), 113-123.
- Choi, C., & Bum, C. H. (2019). Physical leisure activity and work for quality of life in the elderly. *Journal of Physical Education and Sport*, 19(2), 1230-1235.
- Cleary, K. K., & Howell, D. M. (2006). Using the SF-36 to determine perceived health-related quality of life in rural Idaho seniors. *Journal of Allied Health*, 35(3), 156-161.
- Coleman, J. (1988). Social capital in the creation of human capital: *American Journal of Sociology*, 94(Supplement), 95-120.
- Cornwell, B., & Harrison, J. A. (2004). Union members and voluntary associations: Membership overlap as a case of organizational embeddedness. *American Sociological Review*, 69(6), 862-881.
- Dahlberg, L., & McKee, K. J. (2014). Correlates of social and emotional loneliness in older people: Evidence from an English community study. *Aging & Mental Health*, 18(4), 504-514.
- Eriksson, M., Dahlgren, L., Janlert, U., Weinehall, L., & Emmelin, M. (2010). Social capital, gender and educational level impact on self-rated health. *The Open Public Health Journal*, 3(1).
- Fallowfield, L. (2009). What is quality of life. *Health Economics*, 1(8), 1-8.
- Farquhar, M. (1995). Elderly people's definitions of quality of life. *Social Science & Medicine*, 41(10), 1439-1446.
- Folland, S. (2008). An economic model of social capital and health. *Health Economics, Policy and Law*, 3(4), 333-348.
- Fratiglioni, L., Wang, H. X., Ericsson, K., Maytan, M., & Winbland, B. (2000). Influence of social network on occurrence of dementia: A community-based longitudinal study. *The Lancet*, 355(9212), 1315-1319.

- Fukuyama, F. (2000). *Social capital and civil society* (SSRN Scholarly Paper No. 879582). Retrieved October 10, 2022, from SSRN: <https://ssrn.com/abstract=879582>
- Gallicchio, L., Hoffman, S. C., & Helzlsouer, K. J. (2007). The relationship between gender, social support, and health-related quality of life in a community-based study in Washington County, Maryland. *Quality of Life Research*, 16(5), 777-786.
- García, L. M. R., & Navarro, J. M. R. (2018). The impact of quality of life on the health of older people from a multidimensional perspective. *Journal of Aging Research*, 2018, 1-7.
- General Statistics Office. (2011). *Điều tra biến động dân số và kế hoạch hóa gia đình 1/4/2011: Các kết quả chủ yếu [Population changes and family planning survey on 1 April 2011: Key findings]*. Retrieved October 10, 2022, from Tổng Cục thống kê website: <https://www.gso.gov.vn/du-lieu-va-so-lieu-thong-ke/2019/03/dieu-tra-bien-dong-dan-so-va-ke-hoach-hoa-gia-dinh-1-4-2011-cac-ket-qua-chu-yeu/>
- General Statistics Office. (2020). *Dự báo dân số Việt Nam giai đoạn 2019-2069 [Vietnamese Population Projection of 2019-2069]*. Retrieved October 10, 2022, from https://vietnam.unfpa.org/sites/default/files/pubpdf/final_population_projection_vie_to_upload.pdf
- General Statistics Office. (2021). *Diện tích, dân số và mật độ dân số chia theo địa phương [Area, population and Density]*. Retrieved October 10, 2022, from <https://pxweb.gso.gov.vn/pxweb/vi/D%c3%a2n%20s%e1%bb%91%20v%c3%a0%20lao%20%20c4%91%e1%bb%99ng/D%c3%a2n%20s%e1%bb%91%20v%c3%a0%20lao%20%20c4%91%e1%bb%99ng/V02.01.px/table/tableViewLayout1/?rxid=233fabd8-1944-4ff7-95c7-d398784412b3>
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston, MA: Allyn & Bacon.
- Ghamari, M. (2013). Effectiveness of group counseling with logotherapy approach on college students quality of life. *Contemporary Educational Researches Journal*, 3(1), 6-11.
- Gliem, J. A., & Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*. Retrieved October 10, 2022, from <https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem%20&%20Gliem.pdf>
- Goodman, A. C., Stano, M., & Tilford, J. M. (1999). Household production of health investment: Analysis and applications. *Southern Economic Journal*, 65(4), 791-806.
- Grossman, M. (1972). Front matter, the demand for health: A theoretical and empirical investigation. In *The demand for health: A theoretical and empirical investigation* (pp. 20-0). New York, NY: NBER.
- Hamano T., Fujisawa Y., Ishida Y., Subramanian, S. V., & Kawachi I. (2010). Social capital and mental health in Japan: A multilevel analysis. *PLoS ONE*, 5(10), 1-6. doi:10.1371/journal.pone.0013214
- Hanifan, L. J. (1916). The rural school community centre. *Annals of the American Academy of Political and Social Sciences*, 67(1), 130-138.
- Helliwell, J. (2003). *Well-being and social capital: Does suicide pose a puzzle?* Paper presented at the Conference on Well-being and Social Capital, Harvard University.

- Hering, M. (2013). Live longer, work longer? Intergenerational fairness in retirement age reforms in Germany and the United Kingdom. In *Ageing populations in post-industrial democracies* (pp. 101-127). London, UK: Routledge.
- Ho Chi Minh City Department of Population and Family Planning. (2020). *TP.HCM: Báo động mức sinh thấp nhất nước, già hoá dân số tăng [Ho Chi Minh City: Alarming the lowest fertility rate in the country, population aging increases]*. Retrieved October 10, 2022, from <http://dansohcm.gov.vn/tin-tuc/tin-tuc-chuyen-nghanh/7469/tp-hcm-bao-dong-muc-sinh-thap-nhat-nuoc-gia-hoa-dan-tang/>
- Kawachi, I., Kennedy, B. P., Lochner, K., & Stith, D. B. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health*, 87(9), 1491-1498.
- Kawachi, I., Kennedy, P., & Glass, R. (1999). Social capital and self-rated health: A contextual analysis. *American Journal of Public Health*, 89(8), 1187-1193.
- Kim, D., Kawachi, I., Vander Hoorn, S., & Ezzati, M. (2008). Is inequality at the heart of it? Cross-country associations of income inequality with cardiovascular diseases and risk factors. *Social Science & Medicine*, 66(8), 1719-1732.
- Kim, H. H.-s. (2013). Health benefits of social capital: A multilevel analysis of the Asian barometer survey (2003). *Asian Social Science*, 9(13), 63-73.
- Layte, R., Sexton, E., & Savva, G. (2013). Quality of life in older age: Evidence from an Irish cohort study. *Journal of the American Geriatrics Society*, 61(2), S299-S305.
- Leech, N., Barrett, K., & Morgan, G. A. (2013). *SPSS for intermediate statistics: Use and interpretation*. London, UK: Routledge.
- Li, Y. P., Lin, S. I., & Chen, C. H. (2011). Gender differences in the relationship of social activity and quality of life in community-dwelling Taiwanese elders. *Journal of Women & Aging*, 23(4), 305-320.
- Lin, N. (2001). *Building a network theory of social capital*. London, UK: Routledge.
- Lin, N., Ye, X., & Ensel, W. M. (1999). Social support and depressed mode: A structural analysis *Journal of Health and Social Behaviour*, 40(4), 334-359.
- Lindén-Boström, M., Persson, C., & Eriksson, C. (2010). Neighbourhood characteristics, social capital and self-rated health - A population-based survey in Sweden. *BMC Public Health*, 10(1), 1-15.
- Litwin, H., & Stoeckel, K. J. (2014). Confidant network types and well-being among older Europeans. *The Gerontologist*, 54(5), 762-772.
- Lochner, K. A., Kawachi, I., Brennan, R. T., & Buka, S. L. (2003). Social capital and neighborhood mortality rates in Chicago. *Social Science & Medicine*, 68(3), 436-443.
- Lucumí, D. I., Gomez, L. F., Brownson, R. C., & Parra, D. C. (2015). Social capital, socioeconomic status, and health-related quality of life among older adults in Bogotá (Colombia). *Journal of Aging and Health*, 27(4), 730-750.
- Mercier, C., Peladeau, N., & Tempier, R. (1998). Age, gender and quality of life. *Community Mental Health Journal*, 34(5), 487-500.
- Min, D., & Cho, E. (2018). Patterns in quality of life according to employment among the older adults: The Korean longitudinal study of aging (2008-2014). *BMC Public Health*, 18(1), 1-10.

- National Assembly. (2009). *Luật người cao tuổi [Elderly law]*. Retrieved October 10, 2022, from <https://luatvietnam.vn/chinh-sach/luat-nguoi-cao-tuoi-2009-48483-d1.html>
- Nguyen, K. D., & Hoang, T. T. (2016). Analysis of changes in precipitation and extremes events in Ho Chi Minh City, Vietnam. *Procedia Engineering*, 142(2016), 229-235.
- Norstrand, J. A., & Xu, Q. (2012). Social capital and health outcomes among older adults in China: The urban-rural dimension. *The Gerontologist*, 52(3), 325-334.
- Punta, P., Somrongthong, R., & Kumar, R. (2019). Factors influencing quality of life (QOL) amongst elderly caregivers of people living with HIV/AIDS in Phayao province, Thailand: A cross-sectional study. *F1000Research*, 8(39), 1-11.
- Putnam, R. D. (2000a). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon & Schuster.
- Putnam, R. D. (2000b). Bowling alone: America's declining social capital. In L. Crothers & C. Lockhart (Eds.), *Culture and politics: A reader* (pp. 223-234). doi:10.1007/978-1-349-62965-7-12
- Ramsey, J. B. (1983). Diagnostic tests as residuals analysis, perspective and comment. *Econometric Reviews*, 2(2), 241-248.
- Rocco, L., & Suhrcke, M. (2012). *Is social capital good for health? A European perspective*. Retrieved October 10, 2022, from <https://apps.who.int/iris/handle/10665/352821>
- Roebuck, J. (1979). When does old age begin? The evolution of the English definition. *Journal of Social History*, 12(3), 416-428.
- Schumann, D. A., & Mosley, W. H. (1994). The household production of health: Introduction. *Social Science & Medicine*, 38(2), 201-204.
- Soósová, M. S. (2016). Determinants of quality of life in the elderly. *Central European Journal of Nursing Midwifery*, 7(3), 484-493.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*. New York, NY: Harper Collins.
- Tajvar, M., Arab, M., & Montazeri, A. (2008). Determinants of health-related quality of life in elderly in Tehran, Iran. *BMC Public Health*, 8(1), 1-8.
- Taylor, S. E., Sherman, D. K., Kim, H. S., Jarcho, J., Takagi, K., & Dunagan, M. S. (2004). Culture and social support: Who seeks it and why? *Journal of Personality and Social Psychology*, 87(3), 354-362. doi:0.1037/0022-3514.87.3.354
- United Nations Population Fund (UNFPA) & HelpAge International. (2012). *Báo cáo tóm tắt Già hóa trong Thế kỷ 21: Thành tựu và Thách thức [Summary Report Aging in the 21st Century: Achievements and Challenges]*. Retrieved October 10, 2022, from https://unfpa.org/sites/default/files/pub-pdf/UNFPA-Exec-Summary_VN.pdf
- Ventegodt, S., Merrick, J., & Andersen, N. J. (2003). Quality of life theory III. Maslow revisited. *The Scientific World Journal*, 2003(3), 1050-1057.
- Vo, X. N., Vo, Q. T., Watanapongvanich, S., & Witvorapong, N. (2019). Measurement and determinants of quality of life of older adults in Ho Chi Minh City, Vietnam. *Social Indicators Research*, 142(3), 1285-1303.

- Vu, D., Nguyen, L. T. M., Vu, T. T., Truong, C. X., Le, T. M., Nguyen, T. S., ... Le, N. M. (2020). Quality of life of older adults in nursing homes in Vietnam. *Health Psychology Open*, 7(2), 1-9.
- Welsh J. A., & Berry H. L. (2009). *Social capital and mental health and well-being*. Paper presented at Biennial HILDA Survey Research Conference.
- Wilkinson, R., Kawachi, I., & Kennedy, B. P. (1998). Mortality, the social environment, crime and violence. *Social Health Illness*, 20(5), 578-597.
- Williams, B., Campbell, C., & MacPhail, C. (1999). *Managing HIV/AIDS in South Africa: Lessons from Industrial Settings*. Johannesburg, South Africa: CSIR.
- World Bank. (2022). *World bank country and lending group*. Retrieved October 10, 2022, from <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- World Economic Forum. (2011). *Global population ageing: Peril or promise*. Geneva, Switzerland: World Economic Forum.
- World Health Organization. (1998). *WHOQOL user manual*. Retrieved October 10, 2022, from <https://apps.who.int/iris/handle/10665/77932>
- World Health Organization. (2015). *World report on ageing and health*. Retrieved October 10, 2022, from <https://apps.who.int/iris/handle/10665/186463>
- Zaninotto, P., Falaschetti, E., & Sacker, A. (2009). Age trajectories of quality of life among older adults: Results from the English longitudinal study of ageing. *Quality of Life Research*, 18(10), 1301-1309.
- Zhang, Z., & Chen, W. (2019). A systematic review of the relationship between physical activity and happiness. *Journal of Happiness Studies*, 20(4), 1305-1322.

