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FACTORS AFFECTING HEALTHCARE DEMAND IN VIETNAM DURING COVID-19

Anh Nguyen Ngoc ✉**;** Thai Binh University of Medicine and Pharmacy

Abstract: According to statistics of the Ministry of Health of Vietnam, the proportion of people infected with the disease has been increasing recently. In addition, according to the statistics of the General Statistics Office of Vietnam, the budget and spending on health tend to increase. That means there is an increase in people's health care needs. The main objective of the study is to examine the factors affecting health care in Vietnam. The study used initial survey data in Nam Dinh, where GDP per capita is equivalent to 96.4% of the national average GDP, with a total of 500 respondents. Respondents were selected based on convenience sampling, the questionnaires were designed according to previous studies and added a research variable on COVID-19, and took place in July 2021. Descriptive analysis and linear regression statistics were used with with the help of SPSS software. Result shows that factors such as income, age, education, participation in health insurance, belief in healthcare, effects of COVID-19, family medical history and self-perceived health status were statistically significant in influencing the need for medical care. According to the study results, public health authorities and governments should pay attention to targets to increase the use of health care.

Keywords: COVID 19, Health research, Health systems, Primary health care.

✉ hyyhlywa@gmail.com

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INTRODUCTION

Maslow's hierarchy of needs proposed by Abraham Maslow is a well-known theory of human psychology. This pyramid of needs consists of 5 basic levels from low to high, respectively physiological needs, safety needs, love and belonging, esteem, self- actualization. Thus, it can be seen that the need for health care is essential. It is the basic foundation in the formation and development of human-being.

According to Callanhan, health is generally defined as "a state of complete physical, mental and social well-being with the absence of disease or abnormal conditions". On the other hand, from an economic perspective, health is an investment that creates a state of comfort and it is used throughout life (Grossman). However, it is asserted that capital can depreciate over time due to illness and aging. For these reasons, medical care plays a essential role.

According to data from the General Statistics Office of Vietnam, the amount of money paid for health is increasing day by day. This money comes from insurance costs, medical examination and treatment costs and investment costs for infrastructure as well as the level of medical development. Besides, experts also believe that the current living conditions, socio-economic development and international integration allow each individual and each family to have stronger economic development. This has led to the need for health care.

There was a lot of economics related to health care in the world, especially in developed countries. In Vietnam, a developing country, the demand for health care tends to increase, but there was little research on this issue. Especially in the current context, when the world has affected by COVID-19, this issue is even more urgent. This study was conducted based on previous studies and added the impact of COVID-19 on the above problem.

Research data was collected through questionnaires from the people in a province in Vietnam. In order to be representative, discoverable, reliable, data are based on the following standard: the research period was in July 2021 and the survey was conducted on 500 people aged 20 and over.

In Musgrove's study in 2004, it was shown that the need for medical care has a non-linear relationship with age. This was also clarified through the study of Anit N. Mukherjee and Krishanu Karmakar (2016). The demand for healthcare was recorded reduction during adolescence and middle age, and then rise again when a person got old. In detail, in the years between 15 and 45 years, the proportion of people interested in health care was lower than that of older. This is due to a complex psychological process in people of different ages. At different ages people have different tendencies, needs, interests. Hence, age also plays a vital role in health care.

Larison et al, Hsieh et al and Kenkel et al also pointed out that gender has an effect on demand. In particular, there is a greater recognition of needs in women than in men. On the other hand, Yong Kang Cheah (2012) carried out a study and concluded that there was no relationship beetween them. However, for objective and complete research, the author will still include this variable in the survey.

The research of Zhang et al illustrated that residence was an essential factor in health care needs. People living in urban areas were more concerned about health than rural. Because, between these two regions, there was a difference in the level of economic development, culture, education, and health. Opposite, Yong Kang Cheah (2012) noted that no reliable difference occurred.

Marital status was found to influence perceptions of health care. This was made clear through the studies of Tian et al (2012), Deb et al and Yong

Kang Cheah (2012). That can be explained because after marriage, people will be more responsible, more concerned about the health of their family and themselves. In young people, they are interested in other social issues such as study, work, experience, travel, ... and seem to pay less attention to health.

Yong Kang Cheah (2012) researched that education and health care had a linear relationship. Those who are educated will have knowledge, interest and understanding of health care issues. They know that regular health care is a prerequisite for building a healthy life. In addition, they know how to absorb and apply knowledge learned in school and on reputable information channels. That also gave similar results through the study of Anit N. Mukherjee and Krishanu Karmakar (2016).

Kenkel found that people working in the health sector are more interested in health care. In this research, the author conducts study on career variables for demand. Occupations will be divided into two categories: knowledge workers and unskilled workers. This division of occupation is based on the education of the workers. The author expects that there will be a difference between these two groups.

Income is a vital factor. Larison et al, Yong Kang Cheah (2012) and Anit N. Mukherjee and Krishanu Karmakar (2016) also pointed out that when people got high income, they had a high investment in health. This can be seen based on psychology and according to Maslow's hierarchy of needs, the need to be satisfied with health is the top need of human beings. Investing in your health is a wise, profitable, long-term investment.

Kenkel et al, Zhang et al, Hsieh et al, Deb illustrated that health insurance participants were more concerned about health. On the other hand, following Pauly and Yong Kang Cheah (2012), the result showed that there was no significant relationship between medical insurance and medical care.

Yong Kang Cheah (2012) added variable hereditary factor, history of serious family illnesses. The fact that individuals with a serious family history are likely to be more aware of their own health, and therefore tend to live a healthy lifestyle and use preventive medical care. Hence, genetic factors were taken into account in this study, to examine its effect on preventive health care use.

Tian et al, Deb and Yong Kang Cheah (2012) also found that self-awareness is closely related to health care. Weak people have more medical attention than healthy people. They often have regular check-ups, exercise, and maintain a healthy lifestyle.

Belief in health is also a factor in relation to medical need. This belief is believing in scientific progress, specialization, and modernization of the medical profession, believing in the possibility of being cured of disease. Junshiro Ohmura found that health belief had a significant relationship with medical demand. On the other hand, Urquhart Law and Cromer showed health belief is not vital. For young people, the evidence of a relationship, the extent to which beliefs remained uncertain (Dagmar M. Haller et al, 2008).

Previous studies have not mentioned COVID, to ensure the urgency of the topic, the author has included the influence of this pandemic into the survey model. This pandemic has affected the lives of people all over the world. The number of infections is increasing and everyone is aware of protecting themselves, their families and society. We care more about health, learn how to maintain a healthy lifestyle, how to take preventive health care. Hence, this factor is expected to have a linear correlation with the need for medical care.

METHOD

The study was conducted in the form of a quantitative study. The survey

participants consented to the use of the data they provided to conduct the study. Random sampling method was used. Interviewees are Vietnamese citizens in Nam Dinh province, aged 20 years and older (both male and female). The author chose the location in Nam Dinh province for the following reasons. Objectively, according to data extracted from the General Statistics Office of Vietnam, the GDP per capita of Nam Dinh province is roughly equivalent to the national average. This can be seen through the data of 2020, the national GDP was 4,249,000 VND while the GDP of Nam Dinh province was 4,096,000 VND. Thus, the similarity ratio is approximately 96.4%. Subjectively, the data collection focused on Nam Dinh province facilitated the study because this study was not funded by any organization. Exclusion criteria are people with depression, mental illness, and cognitive inability.

The time to conduct the research is in July 2021. This is the time when the COVID epidemic shows signs of resurgence in Vietnam. This is a essential time to study whether COVID is impacting healthcare needs. Data was collected through a questionnaire. The survey consists of two main parts. Part 1 is the demographic survey. And part 2 is designed based on the questions that have been raised by the authors who have studied this issue before. However, the author has added a question related to COVID-19. After collecting data, the author entered the data into Microsoft Excel, then the author put the data into SPSS for analysis. The author classified survey participants by age group 1 includes people from 20-30 years old, group 2 is from 30-60 years old and group 3 is over 60 years old. The dataset consists of 500 observations and 6500 numerical data. Data was collected and processed through the following methods: descriptive statistics and linear correlation regression through the following steps (1) checking the quality of the scale through Cronbach's Alpha, (2) checking the correlation between variables through Person test, (3) linear regression.

The variables used are presented as Table 1:

Table 1. Meaning of variables

Variable	Meaning	Role
DEMAND	Medical demand	Dependent variable
AGE	Age	Independent variable
GENDER	Gender	Independent variable
PLA	Place	Independent variable
MAR	Marital status	Independent variable
GRA	Graduated	Independent variable
JOB	Job	Independent variable
ECO	Economic	Independent variable
INS	Insurance	Independent variable
FAM	History of genetic disease	Independent variable
SEL	Background medical history	Independent variable
BEL	Belief	Independent variable
COVID	COVID-19	Independent variable

In order to examine the influence of independent variables on the medical demand, quantitative research methods with the support of SPSS version 20.0 software was found. Model is built as follows:

Model: $DEMAND = \alpha + \beta1 * AGE + \beta2 * GENDER + \beta3 * PLA + \beta4 * MAR + \beta5 * GRA + \beta6 * JOB + \beta7 * ECO + \beta8 * INS + \beta9 * FAM + \beta10 * SEL + \beta11 * BEL + \beta12 * COVID + \varepsilon$

Where: α, $\beta1$, $\beta2$, $\beta3$, $\beta4$, $\beta5$, $\beta6$, $\beta7$, $\beta8$, $\beta9$, $\beta10$, $\beta11$, $\beta12$ are coefficients

ε is error

RESULT

Descriptive statistical results show variables with their mean, Std. Deviation value calculated from 500 records. Overall, most of the mean values of the variables range from 0.5 to 1. However, the mean value of the variable ECO is 1.49. The variable ECO has 3 values 0 (no economic possibility), 1 (medium economic possibility), 2 (high economic possibility). That indicates that the majority of survey respondents have a moderate to high economic ability. Besides, the mean value of DEMAND is 1.62. According to the scale of converting the level of people's medical needs, which gradually increases with a value from 0 to 3, medical concern is about the average level.

Table 2. Descriptive Statistics

	N	Mean	Std. Deviation
ECO	500	1.49	.723
INS	500	.78	.412
FAM	500	.50	.500
SEL	500	.55	.498
BEL	500	.61	.487
COVID	500	.96	.191
DEMAND	500	1.62	.940
Valid N (listwise)	500		

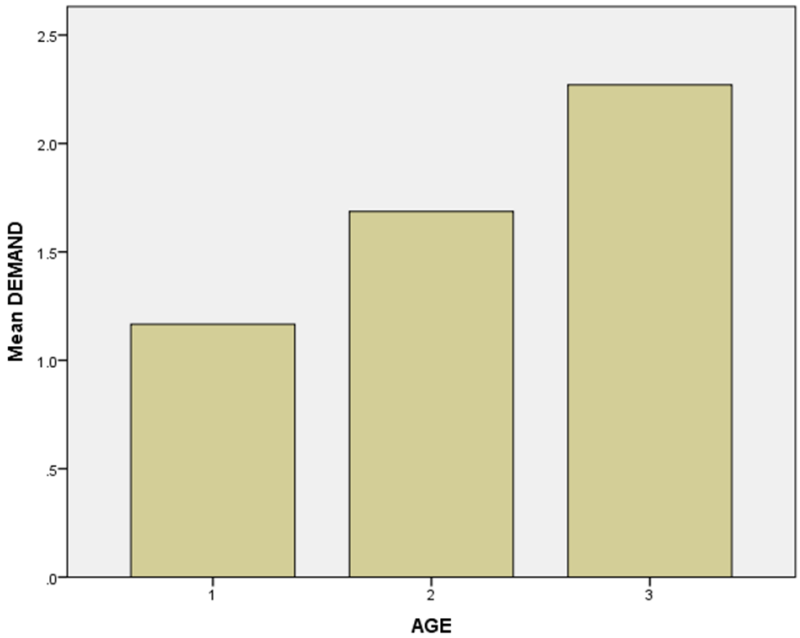

Figure 1. Level of stress among ages

The chart above shows a rough outline of the correlation between medical care needs by age group. Group 1 is adults aged 20-30 years old, group 2

is 30-60 years old, and group 3 is over 60 years old. According to the bar chart, as age increases, the demand for medical care increases. It can be seen that people over 60 have almost twice as much interest as young people aged 20 to 30 years old.

Pearson test showing the correlation between variables is performed via SPSS. From that data, all dependent variables have a low degree of correlation with each other. Thus, there is no linear relationship between DEMAND and the remaining variables with a certain confidence level with Pvalue < 0.05.

In this step, the author will perform Durbin Watson test to find out whether autocorrelation occurs . The result was recorded as 2,224 with a p-value for the F-test of 0.000, less than 0.05 (This value is extracted from the ANOVA test). Therefore, no autocorrelation occurs.

In Table Coefficients, this table shows the coefficient of inflation by variance (VIF). All VIF values are less than 2. This indicates that no autocorrelation is observed. Besides, if the Sig value of the independent variables is less than 0.05, these variables are statistically significant. Looking at the table, the Sig value of GENDER, PLA, MAR and JOB is greater than 0.05, so they are not statistically significant. Thus these variables will be removed from the linear regression equation.

Table 3. Pearson test

Correlations

		DEMAND	AGE	GENDER	PLA	MAR	GRA	JOB	ECO	INS	FAM	SEL	BEL	COVID
DEMAND	Pearson Correlation	1	.493**	.099*	.040	.181**	.406**	.221**	.635**	.514**	.286**	.593**	.435**	.344**
	Sig. (2-tailed)		.000	.028	.371	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	500	500	500	500	500	500	500	500	500	500	500	500	500

Table 4. Durbin Watson test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.865[a]	.749	.743	.477	2.244

a. Predictors: (Constant), COVID, MAR, JOB, PLA, GENDER, FAM, BEL, AGE, GRA, SEL, INS, ECO

b. Dependent Variable: DEMAND

Table 5. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	330.531	12	27.544	121.087	.000[b]
	Residual	110.781	487	.227		
	Total	441.312	499			

a. Dependent Variable: DEMAND

b. Predictors: (Constant), COVID, MAR, JOB, PLA, GENDER, FAM, BEL, AGE, GRA, SEL, INS, ECO

Table 6. Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-.649	.118		-5.509	.000		
	AGE	.179	.031	.160	5.794	.000	.673	1.487
	GRA	.456	.048	.242	9.473	.000	.785	1.275
	ECO	.341	.038	.262	9.010	.000	.603	1.657
	INS	.366	.062	.160	5.945	.000	.705	1.418
	FAM	.179	.046	.095	3.851	.000	.839	1.192
	SEL	.612	.050	.324	12.188	.000	.723	1.383
	BEL	.377	.047	.195	8.045	.000	.869	1.150
	COVID	.258	.123	.052	2.093	.037	.817	1.224

a. Dependent Variable: DEMAND

After removing variables GENDER, PLA, MAR, JOB from the model, Coefficients model is run again, the equation with confidence Sig<0.05 is shown below:
DEMAND = - 0.649+ 0.179* AGE + 0.456 * GRA + 0.341 * ECO + 0.366* INS + 0.179 * FAM + 0.612 * SEL + 0.377* BEL + 0.258 * COVID + u

DISCUSSION

Contrary to the arguments of Larison et al, Hsieh et al no essential differences were found between males and females in medical demand. On the other hand, it is consistent with the finding of Yong Kang Cheah (2012). Besides, marital status has no significant impact on demand. This was not observed in the studies of Tian et al, Deb and Yong Kang Cheah (2012). This is a vital difference due to the studies done in different countries. Hence the culture is also distinct.

The result illustrated that there was no significant relationship between residence and demand. This is explained because because Vietnam is a developing country, the regional difference is not so clear. Moreover, the study was conducted focusing on one province in Vietnam, so the economic conditions between the city and the countryside are not actually different.

It was worthwhile to note that education has a positive association with medical care. Highly educated people tend to increase awareness and knowledge of the benefits of health care. They see this as a kind of long-term useful and practical investment. The effect of education is consistent with previous findings. Meanwhile, in contrast to the study of Kenkel, no impact of job has found. Regardless of the profession, in Vietnam, all people care about health.

As previously mentioned studies of Larison et al, Yong Kang Cheah (2012) and Anit N. Mukherjee and Krishanu Karmakar (2016), economics played a dominant role. This may be because high-income people have higher average medical care utilization due to their higher returns (higher wages). The fact

is, when income is high, individuals are healthier in the future, they may have more healthy time to earn activity income. This is a win-win relationship. Furthermore, preventive medical care is also considered a commodity in the market. That means when you have the right income you will buy the right things.

Individuals with health insurance coverage have more frequent routine visits. Because many types of routine visits are on the insurance coverage list. Kenkel, Hsieh and Deb all agreed with this view. In addition, there are many previous studies with mixed results on the effect of medical trust on preventive health care, however, this study recognizes the positive impact of trust on health care.

As Musgrove's study mentioned earlier, medical care did not have a linear relationship with demographics, specifically age. Research by Anit N. Mukherjee and Krishanu Karmakar (2016) argued that this relationship is of mixed nature. At the age of 15-45, there was a decrease in the need, but as the age increased, the need increased. In this study, the result shows that the older people are, the more concerned about their health.

When people are aware of their own health status and family medical history, they tend to care more about their own health. That explanation is that individuals with a family history of poor health tend to be more aware of the consequences of poor health, with a higher probability of genetic diseases. As a result, this situation increases the tendency to use medical care to detect diseases early and maintain health. Tian et al, Deb and Yong Kang Cheah (2012) conducted studies and pointed out the same results.

Lastly, the study documented the impact of the COVID-19 epidemic on health care. This is completely logical, because the pandemic has impacted every aspect of life, such as economic, lifestyle, psychological. The pandemic serves as a wake-up call to everyone about a healthier lifestyle and more health care.

CONCLUSION

DEMAND = - 0.649+ 0.179* AGE + 0.456 * GRA + 0.341 * ECO + 0.366* INS + 0.179 * FAM + 0.612 * SEL + 0.377* BEL + 0.258 * COVID + u

Through the linear regression equation just established above, DEMAND is correlated with the variables AGE, GRA, ECO, INS, FAM, SELF, BEL, COVID. That means the need for medical care is influenced by age, education level, economic condition, health insurance, family history, personal illness, beliefs in the medical background of the country, COVID 19. They are all positively correlated with health care needs. The health status of the individual has the greatest influence on the need for medical care, followed by education, the reliability of the national health system, health insurance, financial ability, COVID 19, family medical history and age.

LIMITATION

This study has some shortcomings in terms of data and timing. Firstly, the survey was only conducted on 500 people aged 20 and over in Vietnam, so the risk of error in the results would increase due to the sample size. Secondly, the data is not collected over a period of time and compares the past with the future, which reduces the validity of the research conclusions.

Besides, the lack of previous research papers on this issue in Vietnam also leads to limited verification for this research result. Therefore, this research currently stops at finding and analyzing the impact of factors on medical care demand in Vietnam in July 2021.

Finally, this study did not consider the impact of factors such as genetic resources, culture, policies, politics, weather and social conditions, and personality of survey participants.

RECOMMENDATION

For the state

In general, the state plays an important role in influencing health needs in terms of education, economy, and health. Education affects people's knowledge base and experience. Therefore, the state needs to focus on investing in the quality of education and training. The state needs to come up with educational policies that focus on necessary social skills and practical theoretical lessons.

In addition, the state should take actions to promote the country's economy, increase per capita income, and have financial support policies for low-income people.

In addition, the state should focus on developing a modern and strong medicine, building a clear health management system, and improving the qualifications and attitudes of health workers. In addition, the state also needs to have reasonable policies on health insurance, expand the proportion of people participating in insurance, and propagate about a healthy lifestyle.

For individual

Individuals greatly influence the need for medical care. First, the individual needs to be properly aware of the illness. From there, build a positive lifestyle mentally and physically. That means regularly practicing healthy sports and thinking positively, reducing stress. Besides, it is necessary to have a reasonable spending plan, avoid buying unnecessary items. Moreover, it is necessary to have the right awareness of the country's medicine and take the initiative in periodic health checks as well as participating in health insurance.

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