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Journal of Trade Science

ISSN 1859-3666

Volume 8

Number 2

June 2020

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RESEARCH OF FACTORS IMPACTING ON THE STATE MANAGEMENT OVER THE DEVELOPMENT OF THE HIGHLY QUALIFIED HUMAN RESOURCES FOR MEDICAL INDUSTRY IN SON LA PROVINCE

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Received: 13th January 2020

Revised: 29th February 2020

Approved: 3rd March 2020

Due to the peculiarity of the human resources in the medical industry, having the State act as a moderator in the development of highly qualified human resources for the healthcare sector is an inevitable objective. According to the Politburo of the Communist Party of Vietnam, the medical profession is a special one that requires careful selection, training, use and remuneration of its personnel indicating a need for prioritising the development of human resources for the medical industry. Over the years, in spite of many reforms, State management over the development of highly qualified human resources for the medical industry in Vietnam still encounters many drawbacks in all aspects from planning and policies; from organising management to control the development of human resources for the medical industry at both central and local levels. Son La province is located in the Northwest of the country with very limited local socio-economic conditions; facilities and medical equipment are still unable to meet the demand, the competences of State management personnel are still lacking, etc. These factors have a huge impact on the State management over the development of highly qualified human resources for the healthcare sector in this particular area. A question is raised on what needs to be done to enhance the effectiveness and efficiency of the State management over the development of highly qualified human resources for the medical industry in Son La province. In order to answer this question, the analysis of the influence of the aforementioned factors to the State management over the development of highly qualified human resources for the medical industry in Son La in recent times is required, as a basis for searching appropriate solutions based on empirical research.

Key words: Influence, impact, human resource development, Son La province

1. Introduction

Human resources working in a particular sector as healthcare sector will have the following characteristics: Human resources in this sector perform activities directly related to the people's health, the lives of patients and demand a lot of labour; Education and training for the human resources in this sector require significant investment and close cooperation and planning; Human resources for medical industry have specific work ethics; Constantly facing risks and uncertainties. Thus, there is a need for the State management over the development of highly qualified human resources

for the medical industry. Previous studies on the State management over the development of highly qualified human resources for the medical industry mainly focus on the policies of the State management over the development of human resources in the healthcare sector and influence factors. Of which, studies of Jennifer Nyoni, Akpa Gbary, Magda Awases, Prosper Ndecki and Rufaro Chatora (2006), *Policies and Plans for Human Resources for Health - Guidelines for Countries in the WHO African Region*, WHO Regional Office for Africa, is a document of World Health Organisation - WHO for the Ministry of Health for African countries on

guidelines of the development of human resources in the healthcare sector, providing guidance on the process of developing schemes on the development of human resources in the medical industry, including: matters analysing, policy establishment, strategy formation for human resources in the medical industry. Accordingly, the process of planning for human resources in the healthcare sector includes the following steps: Preparation, development of related terms and documents, developing the first planning draft, consultation with relevant parties, cost estimation and developing final draft, final editing and printing, development of annual implementation plan, Supervision and evaluation of the plan. Another useful research is “*Health Sector Human Resource Policy*” of Hon. Michael Bill Malabag (2013). This work offers a process and procedure for the management of effectiveness and productivity of human resources in the healthcare sector with 5 main contents including: the analysis of background and context of policies and development orientations of human resources in medical industry, policy and strategy, implementation plan, supervision and assessment of the development of human resources in the medical industry policy. Gilles Dussault and Carl-Ardy Dubois (2003), *Human resources for health policies: a critical component in health policies, Human Resources for Health*. While admitting political characteristics of medical human resources, this paper also discusses the necessity of reasonable labour policies as this is the reason for unsuccessful implementation of health policies. The development of human resources is considered to be crucial in the process of developing health policies and facing external forces. The research proposes the development methods of medical human resources policies in a better way and discusses what is known about the conditions of success. The paper concludes that to achieve health goals in the population, it depends significantly on the provision of effective, approachable, feasible and high quality services by personnel with enough quantity and appropriately distributed among professions and different geographical areas.

In Vietnam, one of the typical researches is the doctoral thesis of Nguyen Minh Loi (2017), *State management over training nursing human resources*

in Vietnam today. This research provides contents on State management of nursing human resources training considered in all three factors including training activities, profession activities and the use of nursing human resources. The study also points out that factors affecting the State management of training nursing human resources are: Political and administrative environment and State policies; Trends of socio-economic globalization and international integration; The development of science technology and engineering; Social fluctuations in population, changing patterns of illness and health care requirements. In Son La province, the research of specialist doctor I Lau Say Chu (2013) “*Regarding the planning and development of the medical industry in Son La province till 2020, with a vision to 2030*”, has clarified the state of planning and development of the medical industry in Son La province complying with the approved guidelines of the Party, State and Industry, in accordance with local socio-economic conditions in each period. Based on the development perspective of the medical network in Son La province, medical human resources of the province will also need to be developed adequately. In particular, constructing a standardized medical human resources to ensure a sufficient quality as well as quantity, synchronizing the structure through the management, developing the medical profession in the right direction to improve the quality of human resources, contributing to the construction of Son La province’s medical system in specific and Vietnamese medical system in general for it to become more modernized and complete aiming towards fairness, effective and developed in order to meet the increasing demand in the activity of production and care and enhancing the people’s health in Son La province. Therefore, it can be seen that the studies about the State management over the development of highly qualified human resources for the medical industry implemented in the world and in Vietnam are associated with specific conditions of the nation or local As there has not yet been a research of the influences to the State management over the development of highly qualified human resources for the medical industry in Son La province, this paper will aim to develop a research to fill that gap.

2. Theoretical framework and research hypotheses

2.1. Theoretical framework

State management of national economy is an organised influence of the State's law on the national economy to make the most effective use of domestic and foreign economic resources, possible opportunities, to achieve the economic development goals that the nation has set, in terms of integration and expansion of international exchanges. Having the State as a moderator of the development of highly qualified human resources for the medical industry contributes significantly to the achievement of the general goal for the medical human resources. This research affirms that: State management over the development of highly qualified human resources for the medical industry of locality is the use of State's power to adjust the process of improving the quality and quantity of human resources, creating a reasonable structure of medical human resources with college or higher education from the enhancement of the professional, ethical and physical qualifications of people who are and will participate in local people's health care activities.

State management over the development of highly qualified human resources for the medical industry in the locality is an important body of the State management of the economy. According to the theory of decentralisation of the State management, the content of the State management over the development of highly qualified human resources for the medical industry in the locality includes:

(i) Enactment of policy and law about the development of highly qualified human resources for the medical industry (concretizing the directions for implementation of policies and laws and strategies of the Central State of the medical industry; Constructing local planning, policies and plans).

(ii) Organisation of the implementation of the development of highly qualified human resources for the medical industry (Organising the implementation apparatus and organising the activity of developing highly qualified human resources for the medical industry).

(iii) Inspecting and supervising the development of highly qualified human resources for the medical industry in the locality

Of which, the subject of the State management depends on the political institutions of each nation, the legislature of the country can be the National Assembly or Parliament to promulgate laws and legal documents on national human resources development; the development of human resources for the medical industry and the development of highly qualified human resources for the medical industry. The Government and the Prime Minister promulgate Decrees, Decisions, Directives and legal documents governing the activities of developing highly qualified human resources for the medical industry. Ministries and ministerial-level agencies directly manage that country's medical industry. In Vietnam, the Ministry of Health is the direct management agency, implementing the function of the State management over the development of human resources for the medical industry. According to the theory of decentralisation of the State management, in local People's Councils and People's Committees of provinces and cities directly under the Central Government carry out the function of the State management over the development of highly-qualified human resources for the medical industry. Provincial governments and central cities execute their State management function towards the development of highly-qualified human resources for the medical industry through the Department of Health. The local Department of Health is not only a specialized agency under the People's Committee but also under the Ministry of Health. The subjects of the State management are the activities of developing highly-qualified human resources for the medical industry including attraction, recruitment; training and development; creating motivations for highly - qualified medical human resources at health facilities, and participating in the care of local people's health.

2.2. Research hypotheses

Studies of the factors influence the State management over the development of highly-qualified human resources in the medical industry in locality through research models are shown in Figure 1. The hypotheses of this research model are as following:

H1: Strategy of the medical industry has a positive impact on the State management over the development of highly-qualified medical human resources in the locality.

H2: Local facilities and medical equipment have a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality.

H3: Local economic, cultural and social conditions have a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality.

H4: Competences of the State management's staff on developing medical human resources in the locality have a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality.

H5: Training system for medical human resources has a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality.

Dependent variable "State management over the development of highly-qualified human resources in the medical industry in the locality", coded as QLNN with measurement scale includes: Strategy and planning of developing highly-qualified human resources in the medical industry in the locality in a good direction (QLNN1); Policies of developing highly-qualified human resources in the medical industry in the locality are completely established (QLNN2); Strategies, plans and policies of developing highly-qualified human resources in the medical industry in the locality in accordance with the implementation conditions (QLNN3); Good implementation of policies to attract, recruit, use; training and development; remuneration has contributed to the development of highly-qualified human resources in the medical industry in the locality (QLNN4); Organisation of the apparatus to well implement an effective State management of developing highly-qualified human resources in the medical industry in the locality (QLNN5); Inspection, supervision and evaluation in the development of highly-qualified human resources in the medical industry in

the locality are carried out often and promptly to be able to detect errors in time (QLNN6).

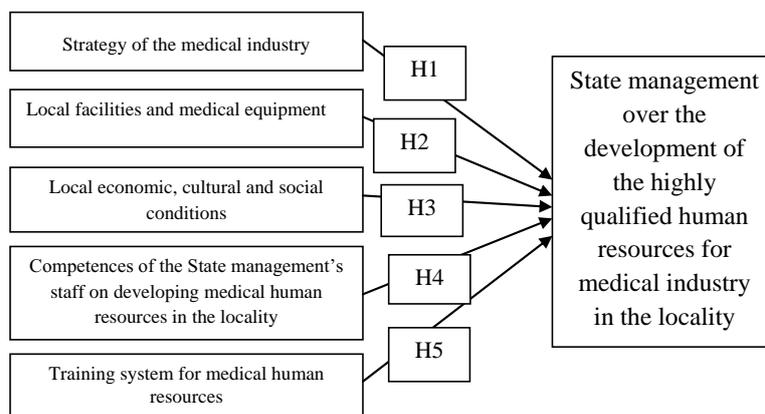


Figure 1: Research model of factors impacting on the State management over the development of the highly qualified human resources for medical industry the locality

Dependent variables include:

(i) "Medical industry development strategy" (CL) with 5 measurement scales including: Strategy of the medical industry has been clearly built and promulgated with specific directions for the development of highly-qualified human resources in the medical industry in the locality (CL1); Medical industry development strategy clearly shows the perspective, goals and direction for developing highly-qualified human resources in the medical industry in the future (CL2); Medical industry development strategy meets the demand of medical examination and treatment service as a basis for forecasting the needs of developing highly-qualified human resources in the medical industry in the locality (CL3); Medical industry development strategy focuses on the solutions of developing highly-qualified human resources in the medical industry (CL4); Medical industry development strategy is built on the basis of a complete and objective information system of medical human resources (CL5).

(ii) "Conditions of local facilities and medical equipment" (VC) with 4 measurement scales including: Local medical equipment meets the essential needs (VC1); Medical facilities at the provincial level meet the regulatory standards (VC2) Medical facilities at the district level meet the regulatory

standards (VC3); Medical facilities at the commune level meet the regulatory standards (VC4).

(iii)“*Local economic and cultural and social conditions*” (DK) with 5 measurement scales including: A well-developed local economy facilitates the development of the medical industry (DK1); Financial resources for local medical industry are improved (DK2); Local cultural characteristics are barriers to the development of medical industry (DK3); Local social characteristics are barriers to the development of highly qualified medical human resources (DK4); The proportion of the service sector in Gross Regional Domestic Product is favourable to the development of the medical industry (DK5)

(iv)“*Competences of the State management's staff on developing medical human resources in the locality*” (CB) with 5 measurement scales including: State management's staff on the development of medical human resources in the locality performs well functions and duties (CB1); State management's staff on the development of medical human resources in the locality performs well rights and responsibility (CB2); State management's staff on the development of medical human resources in the locality has a quality to meet job demands (CB3); State management's staff on the development of medical human resources in the locality has the skills to meet the job demands (CB4); State management's staff on the development of medical human resources in the locality has the knowledge to meet the job demands (CB5).

(v)“*Training system for medical human resources*” (DT) with 5 measurement scales including: Training facility system for medical human resources is distributed reasonably and conveniently for the development of highly qualified medical human resources in the locality (DT1); The training quality of highly qualified medical human resources

meets the needs of healthcare facilities (DT2); Training program and method for highly qualified medical human resources are updated and modern (DT3); Training facility system for medical human resources is able to provide enough highly qualified medical human resources for the industry (DT4); Lecturer team meets the professional standards (DT5). Thus, the research model of the influence on the State management over the development of highly-qualified human resources in the medical industry in locality is carried out with 6 manifest variables with 30 measurement scales.

3. Research methodology

Quantitative methods are used for scale evaluation, factor analysis, correlation analysis and model testing; the research hypotheses have been built by using multiple regression.

3.1. Sampling method

Respondents: Management staff at Son La province department of health and highly-qualified medical human resources (staff and employees with college degree at least) working at public hospitals within Son La province.

The research uses a random sampling method based on a list of medical workers provided by the Department of Health and hospitals.

3.2. Sample size

There are many different ways to choose the sample size in scientific research. For instance, accord-

Table 1: Sample description

No.	Classification criteria	Object	Quantity (people)	Proportion (%)
1	Seniority	Under 5 years	142	26.84
		From 5 to under 10 years	150	28.36
		From 10 to under 15 years	75	14.18
		From 15 to under 20 years	85	16.07
		From 20 years and above	77	14.55
2	Gender	Male	293	55.38
		Female	236	44.61
3	Qualification	College	47	8.88
		University	364	68.81
		Postundergraduate (Specialisation1, Specialisation 2, Doctorate, Master)	118	22.31
4	Position	Department of Health Officer	43	8.13
		Managers at the hospital	78	14.75
		Medical staff at the hospital	339	64.08
		Administrative staff at the hospital	69	13.04

ing to J.F Hair et. al (1998) with Exploratory Factor Analysis (EFA), the minimum sample size must be at least 5 times the clauses in the scale. In this study, the authors use 30 measurement scales in the EFA, thus the minimum sample size must be achieved is: $30 \times 5 = 150$ observations. The survey period takes place from May 2019 to September 2019.

3.3. Data processing

The respondents are approached in two ways: (i) Send the survey questionnaires designed in Google doc to the email addresses of medical human resources in Son La province; (ii) Send the survey questionnaires directly to medical human resources in Son La province. Out of 700 survey questionnaires sent out by the authors, 171 invalid survey questionnaires are removed (due to lack of information) and the rest, 529 valid survey questionnaires are used for data entry and processing. The collected data is entered in an Excel file then analysed using SPSS 21.0 to analyse the reliability of the Cronbach's Alpha measurement scale; Analysis of the exploratory factor (EFA); Correlation analysis between variables and regression analysis.

4. Analysis result of the influences to the State management over the development of the highly qualified human resources for medical industry in Son La province

4.1. Reliability analysis for the measurement scales of variables in the model

The purpose of the analysis is to determine whether the scale achieves Discriminant validity and reliability. Measurement scales are mainly assessed through Cronbach's Alpha test. Before analysing the exploratory factor, Cronbach's Alpha test is used to remove unsuitable variables. When assessing the reliability of the scales, following conditions must be satisfied: choose the scale when the Cronbach's Alpha reliability is greater than 0.6 (the larger the Alpha, the higher the intrinsic consistency reliability) (Nguyen Dinh Tho & Nguyen Thi Mai Trang, 2009); Cronbach's Alpha values: greater than 0.8 are good scales; From

0.7 to 0.8 are usable scales; 0.6 and above can be used (Hoang Trong and Chu Nguyen Mong Ngoc, 2005). Remove observed variables with small Corrected Item - Total Correlation (less than 0.3)

(i) *Scale reliability of the variable "State management of the medical industry in the locality"*

The analysis results show that the Cronbach's Alpha's coefficient of this variable is 0.715 (> 0.6), thus achieving the reliability standard. At the same time, the Corrected Item - Total Correlation values of all measurement scales are greater than 0.3, so all observed variables can be used for EFA.

Table 2: Cronbach's Alpha coefficients of the observed variables "State management over the development of the highly qualified human resources for medical industry in the locality"

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QLNN1	16.51	11.579	.531	.650
QLNN2	16.40	12.453	.431	.681
QLNN3	16.55	12.541	.404	.689
QLNN4	16.80	12.804	.381	.695
QLNN5	16.77	11.603	.448	.677
QLNN6	16.82	11.632	.489	.663

(Source: Data processing results of the authors)

(ii) *Scale reliability of the variable "Strategy of the medical industry"*

The analysis results show that the Cronbach's Alpha's coefficient of this variable is 0.807 (> 0.6), thus achieving the reliability standard. At the same time, the Corrected Item - Total Correlation values of all measurement scales are greater than 0.3, so all observed variables can be used for EFA.

Table 3: Cronbach's Alpha coefficients of the observed variables of the variable "Strategy of the medical industry"

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CL1	13.98	8.558	.637	.759
CL2	14.50	8.239	.554	.783
CL3	13.96	8.761	.527	.789
CL4	14.51	7.932	.610	.765
CL5	14.54	8.177	.650	.753

(Source: Data processing results of the authors)

(iii) *Scale reliability of the variable “Local economic, cultural and social conditions”*

The analysis results show that the Cronbach’s Alpha’s coefficient of this variable is 0.746 (>0.6), thus achieving the reliability standard. The Corrected Item - Total Correlation values of all measurement scales are greater than 0.3, satisfying the condition. The removal of the observed variable DK5 will increase the coefficient of the Cronbach’s Alpha of the variable “Local economic, cultural and social conditions” from 0.746 to 0.755, thus DK5 is removable. Though the change from that action is not significant, it can be considered whether to keep DK5 for EFA in the next part.

Table 4: Cronbach's Alpha coefficients of the observed variables of the variable “Local economic, cultural and social conditions”

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DK1	12.25	8.307	.493	.709
DK2	12.21	7.914	.553	.687
DK3	12.30	7.220	.639	.651
DK4	12.22	7.760	.514	.700
DK5	12.95	8.327	.373	.755

(Source: Data processing results of the authors)

(iv) *Scale reliability of the variable “Competences of the State management’s staff on developing medical human resources in the locality”*

The analysis results show that the Cronbach’s Alpha’s coefficient of this variable is 0.762 (>0.6), thus achieving the reliability standard. The Corrected Item - Total Correlation values of all measurement scales are greater than 0.3, satisfying the condition. The removal of the observed variable CB2 will increase the coefficient of the Cronbach’s Alpha of the variable “Competences of the State management’s staff on developing medical human resources in the locality” from 0.762 to 0.767, thus CB2 is removable. Though the change from that action is not significant, it can be considered whether to keep CB2 for EFA in the next part.

(v) *Scale reliability of the variable “Conditions of local facilities and medical equipment”*

The analysis results show that the Cronbach’s Alpha’s coefficient of this variable is 0.764 (>0.6), thus achieving the reliability standard. At the same time, the Corrected Item - Total Correlation values of all measurement scales are greater than 0.3 and Cronbach’s Alpha coefficient removing these observed variables and smaller than the coefficient of Cronbach's Alpha of the variable “Conditions of local facilities and medical equipment, so all observed variables can be used for EFA (Table 6).

(vi) *Scale reliability of the variable “Training system for medical human resources”*

The analysis results show that the Cronbach’s Alpha’s coefficient of this variable is 0.635 (>0.6), thus achieving the reliability standard. The Corrected Item - Total Correlation values of observed variables DT1, DT2, DT3, DT5 are greater than 0.3, satisfying the condition. Observed variable DT4 with the Corrected Item - Total Correlation value of -1.73 (<0.3), not satisfying the condition. The removal of observed variables DT4 will increase the coefficient of the Cronbach’s Alpha of the variable “Training system for medical human resources” from 0.635 to 0.834, thus DT4 is removed (Table 7).

Therefore, from the aforementioned analysis, it can be seen that variables in the research model are all reliable and can be used for EFA. However, to further enhance the reliability of the measurement scale, the removal of the observed variable DT4 of the variable “Training system for medical human

Table 5: Cronbach's Alpha coefficients of the observed variables of the variable “Competences of the State management’s staff on developing medical human resources in the locality”

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CB1	12.40	9.102	.519	.731
CB2	12.20	9.380	.416	.767
CB3	12.31	9.065	.543	.723
CB4	12.93	8.556	.613	.698
CB5	12.92	8.460	.603	.700

(Source: Data processing results of the authors)

Table 6: Cronbach's Alpha coefficients of the observed variables of the variable "Conditions of local facilities and medical equipment"

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VC1	9.07	5.376	.552	.714
VC2	9.12	5.002	.589	.694
VC3	8.89	5.062	.581	.698
VC4	8.41	5.236	.530	.726

(Source: Data processing results of the authors)

Table 7: Cronbach's Alpha coefficients of the observed variables of the variable "Training system for medical human resources"

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DT1	13.81	6.741	.523	.522
DT2	14.16	5.666	.682	.420
DT3	14.32	6.371	.568	.494
DT4	15.27	9.975	-.173	.834
DT5	14.35	6.032	.581	.478

(Source: Data processing results of the authors)

Table 8: Summary table of reliability testing for measurement scales

No	Variables	Cronbach's Alpha's coefficients	No of observed variables	Cronbach's Alpha 's coefficient when removing observed variable
1	State management of the medical industry in the locality	0.715	6	
2	Strategy of the medical industry	0.807	5	
3	Local economic, cultural and social conditions	0.746	5	The removal of the observed variable DK5 will increase the coefficient of the Cronbach's Alpha from 0.746 to 0.755
4	Conditions of local facilities and medical equipment	0.764	4	
5	Competences of the State management's staff on developing medical human resources in the locality	0.762	5	The removal of the observed variable CB2 will increase the coefficient of the Cronbach's Alpha from 0.762 to 0.767
6	Training system for medical human resources	0.635	5	The removal of observed variables DT4 will increase the coefficient of the Cronbach's Alpha from 0.635 to 0.834

(Source: Data processing results of the authors)

resources" is necessary; It is also worth considering to remove observed variable DK5 of the variable "Local economic, cultural and social conditions" and observed variable CB2 of the variable "Competences of the State management's staff on developing medical human resources in the locality" from the research model (see Table 8)

4.2. Exploratory factor analysis

After conducting reliability analysis of measurement scales, inadequate variables are removed from the model, the remaining variables are used for analysing exploratory factors.

The criteria used when running EFA are: KMO value >0.5, with a significant value <0.05, Principal Axis Factoring with Promax rotation is used and stopping point when

extracting factors with Eigenvalue >1 is used. At the same time, ensuring that Factor loading > 0.3 , which is considered to be the minimum, > 0.4 is considered important, $> = 0.5$ is considered to be of practical significance.

After two regression runs, it can be seen that DK5 and CB2 needs to be removed to ensure the standard.

EFA results after removing DK5 and CB2:

Table 9: KMO and Bartlett's Test test results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.861
Bartlett's Test of Sphericity	Approx. Chi-Square	4935.441
	Df	351
	Sig.	.000

(Source: Data processing results of the authors)

The factor analysis result shows that the KMO value is $0.861 > 0.5$, and the verification value of the significant level is 0.000, significant at 5% of the variables correlated with each other. These indicators satisfy the conditions for an appropriate exploratory analysis model.

With 6 components, the total explanation rate is at 57.67%, which means the Total Variance Explained of the model reaches 59.15% of the total variance of the survey sample; In another words, the interpretability of the model when applied in practice, capable of explaining 57.67% of the actual value. Of which, 25.16% of data variation is explained by the first main component; 9.3% of data variation is explained by the second main component, 7.06% of data variation is explained by the third main component... 5.04% of data variation is explained by the sixth main component (See Table 10). Besides the stopping point method is used with Eigenvalues reach 3.106.

Considering the Pattern Matrix, it can be seen that the factor load-

ing of observed variables of the variables: State management of the medical industry in the locality; Strategy of the medical industry; Local economic, cultural and social conditions; Competences of the State management's staff on developing medical human resources in the locality; Training system for medical human resources are all greater than 0.5, thus satisfying the standards. In addition, the two observed variables CB1 and CB3 of the variable "Competences of the State management's staff on developing medical human resources in the locality" have factor loading values smaller than 0.5 but still greater than 0.3 (see Table 11) so it is still above the minimum and acceptable for further analysis (Table 11).

Therefore, after analysing the scale reliability and EFA, it can be seen that variables in the research model of the influences to the State management over the development of the highly qualified human resources for the medical industry in Son La province are all reliable. Nevertheless, some observed variables of the variables are removed.

4.3. Correlation analysis between variables

The results of the correlation analysis (see Table 12) show that all independent variables have linear correlation with the dependent variables at a confidence level of 99% (Sig. <0.01), which means that independent variables have influence on dependent variables.

In addition, all independent variables are also correlated with each other at a confidence level of 99%, however, the correlation coefficients between some independent pairs are relatively high with r

Table 10: Total variance explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.793	25.159	25.159	6.279	23.254	23.254	4.334
2	2.510	9.296	34.455	2.029	7.514	30.768	3.947
3	1.905	7.056	41.511	1.288	4.770	35.539	3.262
4	1.559	5.774	47.285	1.068	3.955	39.494	3.603
5	1.444	5.348	52.633	.944	3.495	42.989	3.889
6	1.361	5.040	57.673	.839	3.106	46.095	3.188

(Source: Data processing results of the authors)

Table 11: Pattern Matrix

	Factor					
	1	2	3	4	5	6
CL1	.719					
CL4	.714					
CL5	.694					
CL2	.645					
CL3	.586					
DT2		.897				
DT3		.730				
DT5		.728				
DT1		.586				
QLNN1			.619			
QLNN6			.566			
QLNN5			.564			
QLNN2			.508			
QLNN3			.507			
QLNN4			.505			
VC3				.734		
VC2				.677		
VC1				.634		
VC4				.581		
DK3					.733	
DK1					.643	
DK4					.634	
DK2					.616	
CB4						.782
CB5						.721
CB3						.409
CB1						.356

(Source: Data processing results of the authors)

value greater than 0.4 such as variable pair “Competences of the State management’s staff on developing medical human resources in the locality” (CB) and “Conditions of local facilities and medical equipment” (VC) with r value = 0.477. This indicates that there may be autocorrelation and will require further examination later.

4.4. Multiple regression analysis

The results of the multiple regression analysis shows that the fit of the model is

quite low with a relatively low R² value (0.179), however, this model can still be acceptable as this is simply an explanation study for the factors influence to the State management over the development of the highly qualified human resources for the medical industry in Son La province, that has not been done by many previous studies. In addition, all VIF values are less than 2 (see Table 12), so there is no multicollinearity in this model.

At the same time, the results of the regression analysis show that the variables “Medical industry development strategy” (CL); “Competences of the State management’s staff on developing medical human resources in the locality” (CB); “Training system for medical human resources” (DT) are statistically significant at the 5% significance level (Sig value is less than 0.05); “Local economic and cultural and social conditions” (DK) are statistically significant at the 10% significance level (Sig value is less than 0.1). Whereas, “Conditions of local facilities and medical equipment” (VC) is not statistically significant as Sig value is greater than 0.1, thus hypothesis H2 is rejected.

Table 12: Table of correlation coefficients between variables in the model

		CL	DT	VC	CB	DK	QLNN
CL	Pearson Correlation	1	.461**	.280**	.396**	.344**	.312**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	528	528	528	528	528	528
DT	Pearson Correlation	.461**	1	.227**	.283**	.308**	.344**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	528	528	528	528	528	528
VC	Pearson Correlation	.280**	.227**	1	.477**	.400**	.231**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	528	528	528	528	528	528
CB	Pearson Correlation	.396**	.283**	.477**	1	.432**	.279**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	528	528	528	528	528	528
DK	Pearson Correlation	.344**	.308**	.400**	.432**	1	.266**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	528	528	528	528	528	528
QLNN	Pearson Correlation	.312**	.344**	.231**	.279**	.266**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	528	528	528	528	528	528

** . Correlation is significant at the 0.01 level (2-tailed).

(Source: Data processing results of the authors)

Table 13: Results of multiple regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.480	.178		8.323	.000		
CL	.119	.046	.124	2.608	.009	.696	1.437
DT	.186	.039	.217	4.764	.000	.757	1.320
VC	.060	.043	.065	1.390	.165	.722	1.385
CB	.088	.043	.100	2.043	.042	.657	1.523
DK	.082	.044	.087	1.872	.062	.724	1.381

a. Dependent Variable: QLNN

(Source: Data processing results of the authors)

The linear regression equation is set as follows:

$$QLNN = 1.480 + 0.186.DT + 0.119.CL + 0.088.CB + 0.082.DK$$

5. Conclusion

Firstly, the analysis results show that the factors impacting on “The State management over the development of the highly qualified human resources for medical industry” in Son La province are all positive in a descending order as follows:

- “Training system for medical human resources” has the strongest impact on the State management over the development of the highly qualified human resources for the medical industry in the locality with regression weight of 0.186;

- “Medical industry development strategy” has the second strongest impact on the State management over the development of the highly qualified human resources for the medical industry in the locality with regression weight of 0.119;

- “Competences of the State management’s staff on developing medical human resources in the locality” has the third strongest impact on the State management over the development of the highly qualified human resources for the medical industry in the locality with regression weight of 0.088;

- “Local economic, cultural and social conditions” has the least impact on the State management over the development of the highly qualified human resources for the medical industry in the locality with regression weight of 0.082;

Secondly, the test results also show that all the regressions weights above are positive, so the hypotheses in Son La province are accepted. Specifically:

H1: “Strategy of the medical industry has a positive impact on the State management over the development of highly-qualified medical human resources in the locality” is accepted.

H3: “Local economic, cultural and social conditions have a positive impact on

the State management over the development of highly-qualified human resources in the medical industry in the locality” is accepted.

H4: “Competences of the State management’s staff on developing medical human resources in the locality” have a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality” is accepted.

H5: “Training system for medical human resources has a positive impact on the State management over the development of highly-qualified human resources in the medical industry in the locality” is accepted. ♦

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Summary

Xuất phát từ tính đặc thù của nguồn nhân lực y tế (NNLYT) nên sự xuất hiện của Nhà nước với vai

trò điều tiết trong phát triển nguồn nhân lực y tế (PTNNLYT) trình độ cao là một tất yếu khách quan. Bộ Chính trị đã nhận định, nghề y là một nghề đặc biệt, cần được tuyển chọn, đào tạo, sử dụng và đãi ngộ đặc biệt... có nghĩa là NNLYT cần được ưu tiên quan tâm phát triển. Trong những năm qua, mặc dù đã có rất nhiều cải cách, nhưng quản lý nhà nước (QLNN) về PNNLYT trình độ cao ở Việt Nam nói chung vẫn còn nhiều bất cập trong tất cả các khía cạnh từ quy hoạch, chính sách; tổ chức quản lý đến kiểm soát PTNNLYT ở cả cấp trung ương và địa phương. Sơn La là một tỉnh Tây Bắc của đất nước với điều kiện kinh tế, văn hóa xã hội địa phương còn nhiều hạn chế; cơ sở vật chất, trang thiết bị y tế còn chưa đáp ứng yêu cầu, đội ngũ cán bộ QLNN về y tế năng lực còn cần được bổ sung... Những yếu tố này đã tác động không nhỏ đến QLNN về PTNNLYT trình độ cao ở tỉnh miền núi này. Cần phải làm gì để nâng cao hiệu lực, hiệu quả QLNN về PTNNLYT trình độ cao ở Sơn La? Trả lời câu hỏi này cũng có nghĩa là phân tích mức độ tác động của những yếu tố đến QLNN về PTNNLYT ở Sơn La thời gian qua, làm cơ sở để tìm kiếm các giải pháp phù hợp trên cơ sở nghiên cứu thực chứng.

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