

The Relationships between the Internal and External Determinants with Clients' Perceptions of the Health Service System in Thailand*

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Abstract

Background: In assessment of the health service systems, it is crucial to evaluate all aspects including the assessment of external and internal determinants affecting the health service systems. Most importantly for Thailand, there must be an evaluation of the external determinants in context of the Greater Mekong Sub-region (GMS) countries particularly as it becomes part of the ASEAN Economic Community (AEC).

Objective: The objectives of this study are to examine the relationships between the internal and external determinants according to clients' perceptions of the health service system, as well as to find out the factors which best predict the health service system.

Results: The prediction equations demonstrated that out of the hypothesized predicting variables, clients' perceptions of the internal determinant and medical information and technology predicted a significant variance in the health service system of Thailand. Those predicted determinants were synergetic effective predicted group that could predict the health service system 19.6 percent ($R^2 = 0.196$) statistically significant at $p < .001$.

Discussion and Conclusions: In Thailand, medical information and technology contributes to health services in the most efficient and effective ways. Medical information and technology is a special and useful application to help strengthen the functional process of the hospital and improve health service system in the country. It becomes a strategic tool of the health service industry to enhance the national and international competitiveness that leads to change the context of health service system in the country.

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Introduction

The health service system in Thailand is one of the major service industries which promotes and develops capacity in competition (Pocock & Phua, 2011). The government of Thailand has set-up a 5-year policy and strategy to make Thailand the Medical Hub of Asia. To do this, the government will focus on three aspects: 1) creating an excellence center in medical services, 2) supporting health promotion, and 3) developing health products. The strategies focus on 1) marketing and public relations including survey and needs assessment of client satisfaction in other countries, especially in Mekong region; 2) strategic development, and health service system development, and 3) health product development covering inspection and certification of its quality (WHO, 2009). Regarding the health service system, it is necessary to improve the entire system which includes *system input*, such as health providers, information and medical technology, including budget, and finance; *system process*, such as out-patient and in-patient services, regarding utilization rate of out-patient service, average length of stay, bed occupancy rate; and *system output, outcome, and impact*, described as the following: clients' satisfactions, cost, quality, and access to care (Shi & Singh, 1998). Moreover, it is necessary that the driving force of the health service industry in Thailand should be consistent within the context of the changing environment in the future. To accomplish this, Thailand has developed a ten-year plan (from 2012-2021) of science, technology and innovation to achieve the ultimate goal to build an immunized quality society focused on promoting healthy people.

In assessment of the health service systems, it is crucial to evaluate all aspects including the assessment of external and internal determinants affecting the health service systems. Most importantly for Thailand, there must be an evaluation of the external determinants in context of the Greater Mekong Sub-region (GMS) countries particularly as it becomes part of the ASEAN Economic Community (AEC). This changing context may result in economic growth, trade and investment in the region, cooperation in information, technology and logistics, and creation of a new environment with utilizing sufficiently natural resources.

It can be said that in previous studies of the relationships and predicted factors in the health service systems are still limited, especially in the aspect of the preparedness to become AEC. This study will

help with understanding the determinants affecting the health service systems. The determinants include Thai society and cultural values, trade and investment, medical information and technology, and the Thai living and working environment. The findings of this study may provide the insight of the future trend in health service system management of Thailand. They may be the important information concerning health policy planning and appropriate strategic setting for sustainable development of Thailand in future.

Purpose:

The purposes of this study are to examine the relationships between the internal and external determinants according to clients' perceptions of the health service system, as well as to find out the factors which best predict the health service systems. The external determinant is the clients' perceptions of Thai trade and investment, Thai society and cultural values, Medical information and technology, and the Thai living and working environment. The internal determinant is the clients' perception of strengths and weaknesses of the hospital system.

Research Questions:

1. What are the correlations between the internal determinants and clients' perceptions of the health service system?
2. What are the correlations between the external determinants and clients' perception of the health service system?
3. Which of the internal and external determinants best predict the health service system according to clients' perception?

Materials and Methods

This study investigates one aspect of a larger study to investigate the health systems in the Greater Mekong Sub-region countries, that is, Thailand, Laos, Myanmar, Vietnam, and Cambodia. Perceptions of clients are explored here as they are key indicators in understanding the overall acceptance and use of the health service system.

Sample:

The study recruited participants from three major regions of Thailand including Pathumthani Province in the central region of Thailand, Ang Thong province in the lower North, and Ubon Ratchathani province as the representative of the Northeast Four hundred and two subjects responded to the question-

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naires. Power analysis revealed .80 with an effect size of 0.14 at the $p < .05$ level (Cohen, 1998; Kraemer & Thieman, 1987).

Participants were selected using multi-stage random sampling. The sampling process started from stratified random sampling with selecting study area including hospitals where was topography similar to the GMS countries. Quota sampling was applied according to the ratio of the number of hospital beds with the proportion of people in the study area. The participants were four hundreds and two; 310 participants from the hospitals, and 90 participants from the communities. And then, simple random sampling was used in hospital and the communities nearby. Participants were given a socio-demographic questionnaire as well as questionnaires concerning their perceptions of their health service system, trade and investment, Thai society and cultural values, medical information and technology, Thai working and living environment, and strengths and weaknesses of the hospital system.

Questionnaires were used to generate both dependent and independent variables. The dependent variables related to participants' perceptions of health service system while the independent variables were developed to examine the internal and external determinants which affect the health service system.

Dependent Variables:

The dependent variable questions were based on the concept of health service system by Donabedian model (Donabedian, 1973; Shi & Singh, 2009).

Independent Variables

External determinants:

The independent variable questions are based on the theoretical framework of Ginter, Swayne, and Duncan (2009) concerning conducting an environmental analysis of healthcare organizations and were used as the independent variables in the analysis. The external environment relates to determinants which impact the hospital and healthcare system and organizations from the outside and at a more general level (Ginter, Swayne, & Duncan, 2009). In Thailand, these factors include Thai governmental policies on trade and investment, the general culture and belief system of Thailand, access and availability to medical information and technology, and the quality

of the workplace and living environments.

1. Trade and investment. For these questions, participants were asked about their perception of Thai trade and investment policies, and most specifically on the attitudes of Thailand entering into the new ASEAN Economic Community (AEC) in 2015.
2. Thai beliefs and cultural values.
3. Medical information and technology. Access to medical information and technology is critical for diagnosis and treatment as well as prevention of diseases. Thailand, being a transitional country is faced with populations which are lacking internet access and rural hospitals which are limited in medical technology while more urban and wealthier populations have access to some of the best medical technology in the world.
4. Living and working and environment. As Thailand advances economically, there becomes greater need for regulation to ensure a healthy living and work environment. The government has recently made several initiatives to curb pollution and improve the overall environmental health of Thailand (WHO, 2006).

Internal Determinant:

The evaluation of internal determinant often includes analyses of functional areas affecting the health system and healthcare organizations. For this study, the internal determinant included an evaluation of the hospital system. Participants were asked about the strengths and weaknesses of the functional process of the hospital.

Validity and Reliability of Instruments:

Content validity was proved by five experts, and agreement of the experts was 80%. Item analysis was conducted by means of contrast group analysis and revealed a t-value greater than or equal to 2.00 (LoBiondo-Wood & Haber, 2003). Reliability revealed a Cronbach's alpha coefficient of .89, .92, and .94 for the three questionnaires, that is--clients' perceptions of health service system, the external and internal determinants affecting the health service system. The procedures were approved by the Thammasat University Ethics Committee.

Results

Descriptive analyses for socio-demographic data:

Descriptive statistics revealed the sample was 58.7% male and 41.3% female and the mean age was 43.3 years. 34.3% had some primary school education and 56% were married. The average household income was U.S. \$585.00 per month. 40.7% opted for the government universal health coverage (Golden Card). Sixty nine percent reported that they had easy access to health services from the hospital and 93.7% preferred to use conventional medicine. Cars were used by 46.7% of the participants and motorbikes were used by 39.6% of the participants

to get to the hospital. Participants reported an average of 16.23 minutes to travel to the hospital. Approximately ninety three percent lived less than 50 kilometers from the hospital.

Multivariate analyses:

Table 1 presents the correlation findings and addresses research questions one and two:

1. What are the correlations between the internal determinants and the clients' perception of the health service system?
2. What are the correlations between the external determinants and the clients' perception of the health service system?

Table 1 The relationship between the external determinant which mean society & cultural value, trade and investment, medical information and technology, and the living and working environment, including the internal determinant and the health service system (n = 402)

Determinants	Society & cultural value	Trade and investment	Medical information and technology	Living & working environment	Internal determinant	Health service system
External Determinant						
Society & cultural value	1	-	-	-	-	-
Trade and investment	.271**	1	-	-	-	-
Medical information and technology	.252**	.382**	1	-	-	-
Living & working environment	.360**	.160**	.104*	1	-	-
Internal Determinant	.490**	.442**	.322**	.424**	1	-
Health service system	.228**	.283**	.315**	.193**	.396**	1

**p<.01, & *p<.05

The results show that two determinants were significantly correlated with the clients' perception of health service system. These include perceptions concerning the internal determinant as well as the external determinants, that is--society and cultural values, trade and investment, medical information

and technology, and living and working environment.

Table 2 presents the stepwise regression results regarding research question number three:

-Which of the internal and external determinants best predict the health service system according to clients' perception?

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Table 2 Multiple Correlation, Predicted Coefficient, Regression Coefficient of Predictor, F-test and t-test of the Predictor, Standard Error of Prediction, and Constant of Predicted Equation as Stepwise Multiple Regression Analysis in Health Service System Prediction from the Variables (n = 402)

Predicted group	R	R ²	R ² Change	F	B	Beta	t
Internal determinant	.396	.157	.157	74.256***	.450	.328	6.926***
External determinant							
Medical information & technology	.442	.196	.039	48.542***	.729	.209	4.406***
	S.E.est = 9.319		a = 27.023				

Predicted Equation:
 Equation A Y (Health Service System) = 27.023 + .450 Internal Determinant + .729 Medical Information & technology
 Equation B Z (Health Service System) = 328 Internal Determinant + .209 Medical Information & technology

***p < .001

For the study of multiple correlations between the external determinants including society and cultural values, trade and investment, medical information and technology, and the living and working environment, and the internal determinant, with the health service system, it was found that predicted group of health service system was as follows: The internal determinant can predict the health service system at 15.7% (R^2 change = 0.157, β = 0.328) and the external determinant of medical information and technology can predict the health service system at 19.6% (R^2 change = 0.039, β = 0.209). Those predicted determinants were synergetic effective predicted group that could predict the health service system about 19.6% (R^2 = 0.196) statistically significant at .001 (F = 48.542*** p < .001).

To predict the health service system in terms of internal and external determinants, the linear regression equations and the standardized linear regression equations as shown in Equation A and B in Table 2.

Discussion

The results reveal that the best predictors of the health service system concern clients' perceptions about the internal determinant and medical information and technology. In Thailand, medical information and technology contribute to health

services in the most efficient and effective ways. Medical information and technology is a special and useful application to increase the capacity of health services and improve the health service system in the country. Examples include medical information system management, health personnel administration, and policy making of organizations in the health service industry. Other examples include quality and standards of medical equipments, data mining and communication in hospital units and other health services, process management and information systems increase in patient safety such as for preventing medication errors, and supporting emergency medicine. It can be said that medical information and technology help strengthen the functional process of the hospital and improve health service system to meet both national and international quality and standards (Arunanondchai, & Fink, 2006). In other words, it becomes a strategic tool of the health service industry to enhance the national and international competitiveness that leads to change the context of health service system in the country. The progress of science and medical technology combined with the national plan from the Thai government to be medical hub of Asia thus drive the increased competition in the health service systems. Therefore, the internal determinant and medical information and technology are the best factors to predict the health service systems of Thailand.

Limitations

1. There are various determinants affecting the health service system in Thailand, especially in terms of external environment. It is difficult to measure all external factors. Therefore, this study only explores the factors influence the health service system when becoming AEC in 2015.
2. More large-scaled research needs to be conducted in different settings especially

in the GMS countries because previous studies (Korkietpitak & Jaiborisudhi, 2009; Tepchatree, 2003) have shown that there is a great disparity in the size and level of economic development among those countries, and this may play an important role in affecting the health service system in each country and among those in the year 2015.

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