REVIEW ARTICLE



Comparison of the Determinants of the Health Service System and the Health Status of the People in the Greater Mekong Subregion (GMS)



Kanjanee Phanphairoj^{a,b,*} and Ritzmond Loa^{a,c}

^aFaculty of Nursing, Thammasat University, Pathum Thani, Thailand; ^bChulalongkorn University, Bangkok, Thailand; ^cCollege of Nursing, University of Santo Tomas, Manila, Philippines

Abstract: *Background*: Health is influenced by numerous factors that affect the health service system and health status of the people in every country. This article aims to compare the determinants of the health service system and the health status of the people in Thailand, the Lao PDR, Vietnam, and Cambodia; and to recommend policies that impact the population's health and the country's development. Methods: A comprehensive search of the literature from a variety of online search and academic databases, and synthesis of previous study was used in this paper. Data on country indicators were taken from published online databases of the Ministry of Public Health of Cambodia, Lao PDR, Thailand, and Vietnam; the World Health Organization, and the World Bank.

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Results: In Thailand, the determinants of the health service system and health status of the people are medical information and technology because of the government initiatives to improve the quality of healthcare services through the use of modern technology. In Vietnam, the society and culture, and the strengths and weaknesses of the hospital significantly affect the health status and health service system there because of the religious beliefs of the people. However, in Cambodia, the strengths and weaknesses of the hospital are the primary determinant of the health service system and health status of the people due to the condition of the hospitals, the availability of new medical devices, and the number of healthcare professionals. In the Lao PDR, trade and investment, and medical information and technology, significantly influence the health service system and health status of the people because of the government efforts to outsource capital expenditures and medical technology.

Conclusion: The strengths and weaknesses of the hospital are the key determinants of the health service system and health status of the people in all GMS countries. Understanding the determinants of health is essential in order to develop policies and programs that impact the population's health and the country's development.

Keywords: Health determinants, health service system, health status, medical information and technology, living and work environment, society and culture, trade and investment.

1. INTRODUCTION

A population's health and health service system is influenced by many factors. The different conditions of the individual, society, the economy, culture, and the environment that influence health are referred to as the determinants of health [1]. Dahlgren and Whitehead's (1992) model used a multifactorial approach in describing the determinants of health [2].

The model consists of a core surrounded by a set of layers representing the determinants of health [2]. The core of the model consists of the inherited attributes of the individual related to age, sex, and hereditary factors. Although these factors are considered important for health, they are viewed to be immutable to health interventions. Outside the core are individual lifestyle factors, sometimes referred to as lifestyle choices. These individual lifestyle factors consist of individual health behaviors that put the individual at risk of developing disease conditions such as misuse of alcohol and drugs, unprotected sex, smoking, unhealthy diet, and lack of physical activity or exercise. Outward from the core is the second layer known as social and community networks. This refers to the relationship of the individual with his or her family, friends, and significant others in the local community

The third layer outside the core is the living and working conditions. These conditions refer to access and opportunities to housing, healthcare services, employment, a safe wor-

^{*}Address correspondence to this author at the Faculty of Nursing, Thammasat University, 99 Klong Neung, Klong Luang, Pathum Thani 12120, Thailand; Tel: +66-029869213; E-mail: k.phanphairoj@gmail.com

king environment, water and sanitation, education, and basic goods such as food, clothing, and fuel. The last layer outside the core is society, the economy, culture, and the environment, which affect the health and well-being of the individual such as income and wages, the availability of jobs, taxes, and the price of basic commodities, and transport services [2]. These factors affect government priorities in terms of spending and the development of social policies and programs for the health of the people. Dahlgren and Whitehead's framework indicated that within these factors are conditions that function within the individual and the society. The composite interaction of these different factors affects the health service system and the health status of the people in each country. The health service system refers to all of the activities provided by the healthcare professionals or by the healthcare organizations in order to improve health [3]. On the other hand, health status refers to the range of symptoms, functions, and quality of life [4]. Thus, understanding the determinants of the health service system and the health status of the people is essential in order to develop policies and programs that impact a population's health and a country's development [5].

The World Health Organization (WHO) discussed the essential role of the determinants of health in addressing the health issues and problems that have an impact on the development of each country [6]. In 1992, with assistance from the Asian Development Bank (ADB), six countries bordering the Mekong River engaged in the Greater Mekong Subregion (GMS) Economic Cooperation Program. The six countries were Cambodia, the People's Republic of China (specifically Yunnan Province and Guangxi Zhuang Autonomous Region), the Lao People's Democratic Republic, Myanmar, Thailand, and Vietnam. The GMS Economic Cooperation Program aims to support the development efforts of its member countries by promoting sub-regional cooperation in different sectors. In order to achieve its vision of sustainable development, the GMS Economic Cooperation Program adopted the Regional Investment Framework (RIF), which provides financial support to different projects in sectors of the society, and for the economy, the environment, and health. Among the high-priority projects for the year 2014 to 2018 are the improvement of health and social services, labor and migration agreements, as well as educational opportunities. It is expected that the GMS Economic Cooperation Program will promote cooperation among its member countries in the creation of policies and programs for sustainable development [7].

Globally, numerous literature published has indicated the influence of health determinants on the health status of the population in each country. However, there is a dearth of literature on the influence of the health determinants regarding the health service system and the health status of the people in the GMS due to the different political, social, environmental, and economic conditions there [8]. The diverse factors operating in each country and the lack of concurrent findings make it difficult for authors to compare health determinants. Thus, the lack of evidence-based findings makes it difficult for policy makers to develop integrated and harmonious policies and programs for the GMS. This article will guide policy makers, healthcare providers, and other

stakeholders in developing a comprehensive, integrated, and unified health programs for the GMS people.

2. PURPOSE

The purpose of this paper is (1) to compare the health determinants of the health service system and the health status of the people in the Greater Mekong Subregion, specifically in Thailand, the Lao PDR, Vietnam, and Cambodia; and (2) to recommend policies that impact the population's health and the country's development.

3. METHODS

In this article, the determinants were based on the previous study "An examination of determinants affecting the health service systems and health status of the people in the Greater Mekong Subregion" by Ruchiwit, Cowawintaweewat, Pootong, Wareenil, Pawloski (2016). The data for the country indicators were taken from the published online databases of the Ministry of Public Health of Cambodia, Lao PDR, Thailand, and Vietnam, the World Health Organization (http://www.who.int/gho/publications/world healthstatistics/ en/), and the World Bank (http://data.worldbank.org/). Moreover, a comprehensive search of the literature was conducted and used keywords related to health determinants. The search terms used were in English and articles were selected from 2000 to 2016. This literature review used a simple method as follows: 1) collecting data from a variety of online search and academic databases such as PubMed, ScienceDirect, Wiley Online, SpringerLink, and Sage Journals; and 2) synthesis of previous studies.

4. DISCUSSION

The determinants of the health service system and the health status of the people fall under several broad categories; namely, the strengths and weaknesses of the hospital, medical information and technology, the living and work environment, society and culture, and trade and investment [8].

4.1. Strengths and Weaknesses of the Hospital

The hospital is an integral part of the healthcare system. It embodies the healthcare system because it dominates the total healthcare expenditures of each country [9]. The hospital utilizes manpower, machines, materials, financial resources, and operating systems to provide essential and quality health services to patients. The hospitals with appropriate health budgets, a good manpower ratio, comprehensive and affordable health insurance services, effective organizational structure, and efficient polices significantly influence the health service system and health status of the people [10].

The hospitals in the GMS countries are mainly operated by the public sector [11]. In Thailand [12] and the Lao PDR [13], the hospital is essentially a public system as compared to Vietnam [14] and Cambodia [15], where it is operated by both the public and private sectors. Data gathered from the online website of the Ministry of Health revealed that the

percentage of hospitals under the public sector is relatively higher in Vietnam (81%) and Thailand (70%) compared to the Lao PDR (32%) and Cambodia (20%). Although there are private hospitals that operate in each country, the government-owned hospitals that provide affordable services are distributed to different provinces. The manpower ratio for healthcare professionals per population of 10,000 for physicians and nurses is relatively higher in Thailand (MD,4;RN,17) and Vietnam (MD,8;RN,8) compared to Cambodia (MD,1;RN,8) and the Lao PDR (MD,2;RN,8). The ratio of key health workers and the distribution of public hospitals throughout the country influences the accessibility and availability of the health services, as well as the health status of the people [10]. The government allocation of the national budget for the health expenditures for national and provincial health services is higher in Vietnam (7.1%) and Thailand (6.5%) compared to Cambodia (5.7%) and the Lao PDR (1.9%). Moreover, a considerable amount of healthcare funding in Cambodia and the Lao PDR comes from NGOs and donors [16, 13]. Thus, the out-of-pocket spending of the people for health services is higher in Cambodia (63%) and Lao (63%) compared to Thailand (12%) and Vietnam (49%). In addition, a high percentage of the population in Thailand (98%) is covered under the Universal Health Care scheme compared to Vietnam (65%), Cambodia (24%), and the Lao PDR (15%) [17]. Despite the existence of public health insurance and health services provided by the public sector, the reliance of the Lao PDR, Vietnam, and Cambodia on out-ofpocket spending remains high. This prevents poor people from seeking healthcare due to catastrophic healthcare costs, which can lead to individuals choosing between their healthcare and other critical needs such as food and shelter [18]. The management of hospitals in the Lao PDR, Thailand, and Vietnam is decentralized to the local government units, while Cambodia's (2) management system is centralized at the Ministry of Health. The existence of a decentralized system of health governance provides responsibilities to its provincial health offices in planning, financing, and the provision of services, ensuring that health services are accessible and appropriate for the people. The local government unit acts as agent responding to the health needs of the people [19].

The strengths and weaknesses of the hospital are a determinant of the health service system in Thailand, the Lao PDR, Vietnam, and Cambodia. More specifically, the strengths and weaknesses of the hospital are the determinants of the health service system and health status of the people in Cambodia and Vietnam [8]. Despite the government's effort to reform the public health system as early as 1991, Cambodia has remained the country with the highest out-of-pocket spending on health healthcare in private and public services in the region [19, 20]. Survey data from the year 2007 revealed that 5.6 percent of the total household expenditure constitutes healthcare spending [21]. The high healthcare cost is a barrier for impoverished Cambodians in seeking healthcare services [22]. Moreover, the poor conditions of the hospitals, lack of new medical devices, and the limited number of licensed healthcare professionals have forced the people to seek medical treatment in other countries [15, 11]. Therefore, the strengths and weaknesses of the hospital are a strong determinant of the health service system and health

status of the GMS people because it affects the quality and efficiency of the healthcare system of each country [23].

4.2. Medical Information and Technology

Medical information and technology (MIT) are very useful for increasing the capacity of health services and to improve the health service system and health status of the people. Moreover, medical information and technology are critical for the diagnosis and treatment of healthcare providers, the development of health policies, and the decision-making process involving patient services [24].

Medical information and technology are known as the main determinants of the health service system and health status of the people in Thailand [8]. Moreover, they are among the determinants of the health service system in Vietnam, and a determinant of the health status of the people in the Lao PDR [8]. Among the four GMS countries, the Lao PDR [13], Thailand [12], and Vietnam [14] use the computerized Health Management Information System (HMIS), while Cambodia [15] uses the paper-based reporting system. However, facility-level HMIS is still paper based in the Lao PDR. The information and communication technology (ICT) in the GMS is used to handle the burden of data collection in monitoring the health coverage for the people and for decision making at different levels of the healthcare system. In Thailand, the Ministry of Public Health (MOPH) restructured the country's health information system to support the country's universal healthcare coverage scheme, which has been implemented since 2001 [25]. Moreover, Thailand spends 1% of its total national budget on medical equipment as compared to Vietnam (60%), Cambodia (46%); and the Lao PDR (22%) allots a small percentage of its total health budget. Thailand invests in medical information and technology because of the government's vision to be a medical hub in Asia [26]. Many neighboring countries in the region visit Thailand to seek medical care, which offers cheap and quality health services compared to other countries [11]. Furthermore, Thailand's urban development plan integrates multiple ICT for the management of hospitals, waste management, water supply, and the transport system, all of which have a significant relationship with health. It is projected that Thailand will place higher value on medical information and technology once the country has achieved its vision of becoming a medical hub in Asia [27].

In Vietnam, medical information is a critical factor in helping patients choose a healthcare provider [28]. Though access to information continues to improve, the capacity of technology is still weak in Vietnam due to the lack of a sustainable mechanism [29]. Government spending on research and development is also important to consider because of its role in developing new knowledge and health interventions that will benefit the population's health [30]. Among the four GMS countries, Thailand (0.39%) has the highest spending on research and development compared to Vietnam (0.19%), and there is none in Cambodia or the Lao PDR. Research is useful for health policy-makers as well as healthcare practitioners in decision making and improving the quality of treatment based on treatment guidelines in public hospitals [31].

4.3. Living and Work Environment

The living and work environment is known to be a determinant of the health status of the Cambodians, Thais, and Vietnamese [8]. The findings from a survey of men, women, and children in Thailand, Cambodia, and Vietnam reported that occupational health and safety interventions in work conditions are important for people in terms of nonhazardous living conditions [32]. Among the four GMS countries, Thailand has the best living and work conditions, followed by Vietnam, the Lao PDR, and Cambodia. These data are supported by the life expectancy of the people in the GMS since life expectancy is the mirror of the living conditions of the people [33]. That and Vietnamese people have a longer life expectancy, between 75 to 76 years, while the average life expectancy of Laotians and Cambodians is between 67 to 69 years respectively. The total percentage of the population with access to electricity in Thailand (100%) and Vietnam (99%) is higher compared to the Lao PDR (70%) and Cambodia (31.1%). In terms of improved water sources, Thailand (98%) and Vietnam (98%) remain higher than the Lao PDR (76%) or Cambodia (76%). Access to improved sanitation facilities is also higher in Thailand (93%) compared to Vietnam (78%), the Lao PDR (71%), and Cambodia (42%). It is important to note that access to basic services is important for maintaining health and well-being. Moreover, the Thai government has initiated programs to minimize pollution and to improve overall environmental health because they believe that they will be healthier than in a polluted and unhealthy environment [34]. One of the health policies there includes the implementation of the "Go GREEN and CLEAN" campaign sponsored by the Ministry of Public Health. This policy is designed to reduce energy waste and encourage clean and healthy hospital environments, as well as public and education places [35]. Another indicator is the rate of urbanization. Among the four countries, the Lao PDR (4.93%) has the highest rate of urbanization and industrialization, followed by Thailand (2.97%), Vietnam (2.95%), and Cambodia (2.65%). The rapid increase in urbanization and industrialization are risk factors for mental health diseases and other non-communicable diseases such as hypertension. diabetes, obesity, and accidents [36]. The high demand for work productivity contributes to unhealthy behavior such as the decrease in physical inactivity, unhealthy diet, alcohol abuse, smoking, and stress [37]. Moreover, industrialization may increase the risk of acquiring environmentally-related diseases and accidents due to poor work conditions [38].

4.4. Society and Culture

The society and culture influence how people are linked with the health system, their access to health information, and their health practices [1]. The dominant religion, ethnic groups, and the influence of other cultures affect the health status of the people and the system of health service delivery. Among the four GMS countries, society and culture are known to be the main determinants of the health service system and health status of the people in Vietnam, as well as the health status of the people in Cambodia [8]. Notably, Vietnam places high value on the social and cultural values in the health service system and health status of the people because

of the influence of religion [34]. Among the four GMS countries, Buddhism is the dominant religion in Thailand (96%), Cambodia (96%), and the Lao PDR (52.5%). Buddhism involves the belief that pain, suffering, and sickness are part of human life brought about by "kamma," and may prevent the people in the GMS countries from seeking remedies or preventive care [39]. However, the people of Vietnam generally adhere to a combination of Buddhism, Confucianism, and Taoism, along with folk religion. Confucianism is not a religion; rather it provides a set of rules on social and ethical values, while Taoism is a philosophical and religious belief that emphasizes a balance between the different dimensions of the individual and the world. On the other hand, folk religion is a religious belief in the supernatural world involving ghosts and spirits. Folk religion has remained a strong influence on the health beliefs and practices of the Vietnamese, even though formal membership in this religious group is non-existent [40]. Moreover, the family is an important component of the society because of the philosophical principles of Confucianism and Taoism, which emphasize the importance of family life. Health decisions are usually made with the family members due to the influence of Confucian principles, which advocate respect for authority and elders. Most often, the Vietnamese follow the decisions made by the elder members of the family. Moreover, respect for ancestors and their burial sites is strongly practiced. Although the majority of Vietnamese are Buddhist, different religious groups co-exist peacefully in the community. In addition, the use of traditional alternative medicine by medical practitioners is highly accepted in the GMS countries. Traditional healers using medicinal plants are often consulted for treatment of common illnesses, both in urban and rural areas. In fact, there are a number of herbal preparations marketed among these four GMS countries. Moreover, spirit healers that perform rituals are also consulted for the identification and treatment of diseases. In the Lao PDR, the people use a combination of Eastern and Western modalities in the treatment of diseases.

Ethnic diversity also presents another factor in the healthcare service system and health status of the people due to demographic, geographical, and economic barriers [41]. In Thailand (96%), Cambodia (90%), and Vietnam (86.2%) the diversity of ethnic groups is not different compared to the Lao PDR (52.5%). Most of the ethnic groups in the Lao PDR are living in the lowlands, while the minorities reside in the highlands. Health disparities exist in rural areas due to poverty and the availability of health services in remote areas. In particular, women have lower literacy rates than men, and girls have lower school-completion rates than boys; however, female youth literacy is improving [13]. International migration is also another factor. Among these four countries, Vietnam has the highest documented net migration (-200,002), followed by Cambodia (-149,999), the Lao PDR, (-117,700), and Thailand (100,000). Net migration refers to the total number of migrants from other countries compared to the total number of emigrants [42]. The international migration in Vietnam has made a positive contribution to the culture of their country because it generates technology transfer between countries, creates employment opportunities, and improves the standard of living of the people [43].

4.5. Trade and Investment

Among the four GMS countries, trade and investment are a strong determinant of the health status of the people in the Lao PDR [8]. In poor developing countries with an underdeveloped healthcare system, trade and investment from international and NGO organizations can fuel the economy to improve healthcare services [11]. The Lao PDR, like Cambodia, is dependent on financial assistance from its international partners for the development of the health sector in terms of outsourcing capital and medical technology [34]. The presence of foreign support will create advanced technology, new treatments, and specialized skills to improve the health service system as well as the health status of the people. Bilateral, regional, and world trade agreements on the flow of goods, services, and manpower, as well as foreign direct investment, are good sources of capital and medical technology for the Lao PDR. Among these four countries, Vietnam (\$9.2B) has the highest amount of foreign direct investment, followed by Thailand (\$3.7B), Cambodia (\$1.73B), and Lao (\$720M). In the region, the Lao PDR is the only country that has an explicit policy on allowing full ownership of foreign investors [11]. The granting of full ownership and access to its health market and healthcare services will improve the quality of health services by means of the privatization of public health services, the mobility of healthcare professionals, and access to essential services.

CONCLUSION AND RECOMMENDATIONS

The determinants of the health service system and health status of the people in the GMS countries vary from country to country. In Thailand, the government's motive to improve the quality of health services for the people, as well as to become the medical hub of Asia through the use of medical information and technology, significantly influences the health service system and health status of the people. Thus, the government's efforts in developing advanced technology to improve their health services will benefit the health of the people [26].

In Vietnam, the strong belief imposed by religion and the cultural practices of the people influence how they access health services and manage their health status. Thus, incorporating the cultural beliefs and traditional practices of the people in the programs and policies is highly beneficial for the people [44]. In Cambodia, the condition of the hospitals, the availability of new medical devices, and the number of licensed healthcare providers strongly influence the healthcare system as well as the health status of the people. Thus, improving the conditions of the hospitals, using new medical devices, and training healthcare providers will address the issues regarding the health infrastructure and manpower [11, 15]. However, in the Lao PDR, trade and investment significantly influence the health status of the people. Thus, creating an open policy for foreign investors that will protect the interests of all the people, especially the poor who cannot afford expensive health services, can impact the healthcare system and the health status of the people [11]. Although each GMS country has different determinants of the health service system and health status of the people, the strengths and weaknesses of the hospital are an overwhelmingly key determinant. Therefore, ensuring that all hospitals have an appropriate health budget, manpower ratio, comprehensive and affordable health insurance services, an effective organizational structure, and efficient polices can improve the health service system and health status of the people [10]. Moreover, collaboration between the government and the private sector will ensure that healthcare services are affordable both in public and private facilities [45]. Finally, the GMS countries must strengthen their relationship and collaborative efforts to achieve sustainable and equitable development in different sectors.

CONSENT FOR PUBLICATION

Not applicable.

CONFLICT OF INTEREST

The author declares no potential conflicts of interest with respect to research, authorship, or publication of this article.

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