A CONCEPTUAL FRAMEWORK OF PUBLIC HEALTH WELFARE IN THAILAND

Pornpimon Kiattisin, Prush Sa-nga-ngam*, Supaporn Kiattisin and Adison Leelasantitham
Technology of Information System Management Division, Faculty of Engineering, Mahidol University, Thailand

ABSTRACT

Increasing the standard of equality in the public health welfare system for Thailand is of great importance as it reduces the inequality of the existing service rights. This study presents a new concept of standardization that can be achieved by means of applying knowledge of Enterprise Architecture (EA), health data storage for both physical and mental health, and other information related to both external and internal lifestyle factors that affect the physical and mental health of the people in order to be used as information for maintaining and further improving the efficiency of the Thai public health welfare system. The study was evaluated by 10 experts involved in Thailand's public health welfare system area on examples and evaluation criteria referenced from the World Health Organization's 2003 "Health Systems Goals". Overall, the feedback was positive. Therefore, the framework was satisfied and accepted for implementation.

Keywords: conceptual framework, public health, health welfare, Thailand welfare

1. INTRODUCTION

Although, Thailand has applied laws of the human right to be integrated with public health welfare since 2002, which is about promoting all Thai citizens receiving service from those in the health welfare system, namely the Civil Servant Medical Benefits System (CSMBS), the Social Security Scheme (SSS) and the Universal Coverage Scheme (UCS). Each of these programs has been developed and implemented for different groups of beneficiaries. They also receive the right to receive services in case of accidents and emergencies without having to ask for rights and without advance payment (Universal Coverage for Emergency Patients: UCEP). [1]

However, Thailand's health welfare system still faces challenges in improving service quality and creating equality and fairness in receiving services (Health Equity) of people in different health insurance systems. According to the statistical data of the proportion of protection according to basic rights of the Thai health welfare system in 2021, it is still found that all 3 systems still provide protection to people in different proportions, not covering the total number of people in the country, namely, the Civil Servant Medical Benefits System (CSMBS) in the amount of 5.2 million people, the Social Security Scheme (SSS) in the amount of 12.5 million people and the Universal Coverage Scheme (UCS) of 47.4 million people, a total of 65.1 million people [2], compared to the number of Thai population in 2016. 2021, a total of 66.17 million people [3] found that the number of Thai people who received medical treatment rights under the basic welfare system was less than the total number of Thai population, amounting to 1.07 million people, which was a result of equality, Equality and fairness in accessing health services Equity) that is different in society or there is inequality in health welfare system [1].

According to the Sustainable Development Goals (SDGs) by the United Nations (UN), "The goal is to eradicate poverty while preserving the environment and quality of life for all living beings, everywhere in the world, leaving no one behind." which is a global development direction after 2015 that Thailand has integrated with the 20-year national strategic framework [4] and according to the goals of The World Health Organization (WHO) that mention Health Systems Goals that must consist of 3 parts. Important in developing an image of equality and equality in the future include [5] :

- Good Health
- Responsiveness
- Fairness in financing

Therefore, in order to create an equitable in the Thai health welfare system, it is necessary to rely on the Enterprise Architecture (EA) and collect data to support improvement and development methods such as internal factors such as physical health, mental health and external factors such as social structure, economic status that affect people's lives as well as factors that affect to the structure of the welfare system [6]–[9].

2. LITERATURE AND RELATED WORK

The literature review aims to develop the conceptual framework of public health welfare in Thailand. The related information about health determinants, opportunity, and strategy. There is also a study of criteria and methods

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leading to the development of the equality of the conceptual health welfare system that is accepted at the standard level. These are as follows;

A. Public Health Welfare in Thailand

Thailand has three main health insurance systems: (1) the Civil Servant Medical Benefits System (CSMBS), (2) the Social Security Scheme (SSS) and (3) the Universal Coverage Scheme (UCS)

Each major health insurance system has evolved, conceptualized, and designed different systems, such as treasury model, obtaining government budget support benefits Terms of service, form, and method of payment [10] are shown in Table 1.

Table 1 Comparison of Thailand's Health Welfare

	CSMBS	SSS	UCS
Concept	Welfare	Government-sponsored insurance	Welfare
Beneficiary	Civil servants and parents Spouse and up to 3 children	Company employee (Except agricultural workers)	Thai citizens Without other rights
Department	The Comptroller General's Department of The Revenue Department	The Social security Office of The Ministry of Labor	The National Health Security Office (NHSO)
The number of eligible persons (in 2021)	5.2	12.5	47.4
The source of investment	The annual government statement of expenditure	Contributions from the state, employers, and employees	The annual government statement of expenditure
Finance Type	Public Reimbursement	Public Contracted	Public service unit registration & contracted
Benefits	1.Both IPD and OPD in Dental Clinic 2. Medical Supplies 3. Meals and special rooms 4. Maternity allowance	1.Both IPD and OPD in Dental Clinic 2. Medical Supplies 3.Meals and standard room 4.Compensation in case of childbirth, death, disability	1.Both IPD and OPD in Dental Clinic 2. Medical Supplies 3. Meals and standard room 4. Compensation in case of childbirth
Terms of Service	Any independent state hospital	Only for public or private hospitals that are registered with contract partners and hospitals in the network	Only for public or private hospitals that are registered with contract partners and hospitals in the network
Payment method	Charge retrospective service fees at the specified rate	Lump sum payment per capita for outpatient and inpatient services and pay. Add on a case-by case basis	Lump sum payment for health promotion, disease prevention services

As Thailand has three main health insurance systems which are provided to different target populations Including different designs and dispensing methods. There is also a sub-health insurance system which overlaps with the main health insurance system, thus creating a difference between the systems. For example, the inequality that occurs is as follows; [11]

(1) The medical staff in government hospital carry a very heavy burden, resulting in a disparity in service quality.
(2) The private hospitals are more convenient, but the cost of treatment is very expensive, and the price cannot be controlled.
(3) Doctors are concentrated in big cities, causing disparities between regions.

The above situation shows that the problem of the number of medical staff is less than the number of patients. Therefore, people have turned to private services to facilitate and save time, and the medical expenses that people must bear also have other consequences. Financial factors that may affect mental health factors are caused by stress, and people must earn more income to pay for treatment.

B. Relational between welfare and well-being to mental health

Debt and poverty are detrimental to mental health, which is why indebted people suffer from mental illness, and result in physical ailments as well. A study of people with mental illnesses from debt and poverty demonstrated the relationship between mental health and physical health and from retrospective data collection on solving mental health problems caused by debt and poverty. It has been concluded that developing and improving welfare to address more problems can also reduce problems arising from mental health [9].

C. The direct and indirect effect between physical health and mental health

There is a close connection between physical and mental wellness.

First, employment conditions may have an impact on both physical and mental health. A loss of income or productivity due to worsening physical (or mental) health may limit access to better meals and settings. The income effect has a detrimental influence on one's mental or physical health. Stress at work brought on by having a mental (or physical) health problem can have similar detrimental consequences on one's health.

Second, people's decision-making processes may be impacted by their mental health, which might make it more difficult for them to acquire information about their physical health, preventative measures, and the caliber of healthcare professionals.

Finally, lifestyle decisions including food, exercise, and substance use are related to both physical and mental health. Shows in Figure 1

Several research have found that some physical activity is effect to depression/anxiety disorder and poor physical health outcomes. Strong evidence for the beneficial effects of exercise on older people's physical and mental health outcomes is found in systematic reviews[12]–[16]. Another key lifestyle element in the function of producing health is dietary choices. Higher mortality risk is correlated with a poor diet[17]. Increased fruit consumption is strongly and favorably associated with greater health and happiness, according to Mujcic and Oswald[18].

Ultimately, social connections are important health-related production elements. Social engagement and mental health have been linked favorably in previous research[19]. When baseline mental and physical health are taken into account, it has been discovered that loneliness and social isolation are both linked to an increased mortality risk[20]. According to a comprehensive review by Holt-Lunstad et al. (2012), social connections consistently reduce the risk of death. There are also known reverse-causal pathways in the literature, wherein physical impairment and poor mental health lead to increased social isolation[21].

Health policies that aim to improve both physical and mental health need consider both the direct and indirect influences that exist between the two domains of health[7].

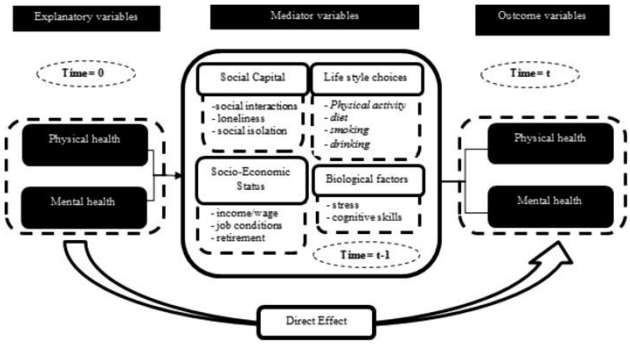

Figure 1 The relation of direct and indirect effect between physical and mental health

D. Health care and other health determinants

'Health Care' was a combined functioning of public health and personal health care service. A health system is made up of all initiatives and institutions whose primary goal is to affect health in the broadest sense. This notion is in keeping with WHO's use of the term health system: 'all the activities whose primary purpose is to promote, restore or maintain health'.

Health is determined by many interdependent factors, including health care. The multi-determinants approach health both physical and mental health[9],The non-healthcare determinants were largely grouped into three main fields[22]: environment, lifestyle, and human biology[7].

The term 'environment' refers to both the physical and social(living)[7] aspects of a person's life and how they influence or interfere with health, for instance:

- Socio-Economic status such as income / wage, job conditions, retirement and law and policy
- Social Capital such as social interaction, loneliness, and social isolation

The term "lifestyle" refers to behavioral or decision-related factors that affect health and sickness, such as physical activity, dietary habits, drinking, smoking, and other behaviors, as well as knowledge or education-based activities.

The term "human biology" refers to the biological or genetic makeup that controls how the human body generally maintains a healthy condition and reacts to other, largely external, health-related factors[8].

In Figure 2, refers to the individual—mostly. biological, psychological, or social reaction to the constellation of health determinants, acting singly or in combination.

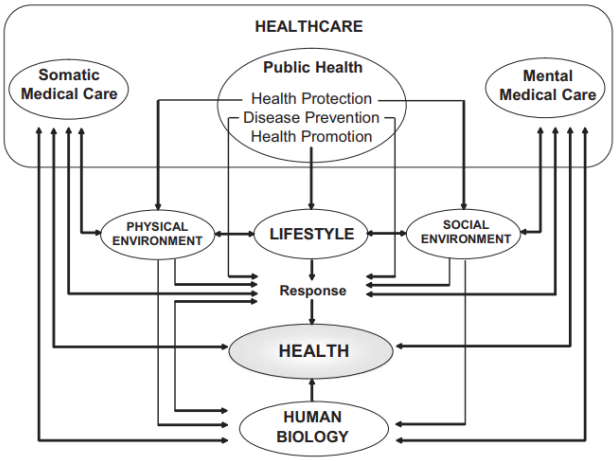

Figure 2 Health determinants model [8]. Health care = medical care + public health. Medical care is (partly due to convenience) further divided into somatic and mental medical care services.

Health care can work indirectly on the other determinants of health to maintain or enhance health in addition to its direct influence on health and sickness. For instance, public health—through its classical health prevention, promotion, and protection strategies—influences the host constitution, lifestyle, and environment, respectively. The environment-host interaction and/or the pharmacodynamics of anti-hypertensive medications are two ways that health care might affect human biology

(such as drug effects on causative agents of diseases in the human body).

Response in Figure 2 refers to an individual's reaction to a set of health factors functioning separately or in combination, often biological, psychological, or social.

This response factor represents the final common pathway to health, and its ultimate expression is regarded as a change in health, an illness, or a disease.

The interrelationships among the health care system and other determinants of health can be of at least three types, namely:

(1) linkages exist between health care and health (depicted in Figure 2 by the arrows running between health care and health fields, including those running via the 'response' box);

(2) linkages exist between health care and non-health care determinants (depicted in Figure 2 by the arrows running from the health care space to lifestyle, environment, and host constitution and by arrows running between the latter non-health care determinants); and

(3) linkages exist between non-health care determinants and health (depicted in Figure 2 by the arrows running from lifestyle, environment, and host constitution to the health field, mainly via the 'response' box).

E. Income, health, and government policies

Socioeconomic status and income are determinants of health, linked to life expectancy, quality of life, and disease risk, with many diseases more prevalent in people from low socioeconomic status. Those with low socioeconomic status are also more vulnerable to the negative impacts of unhealthy lifestyles. Income inequality and health inequality are tightly related. the relationship between income and health as well as how government actions that affect personal income have an impact on health[6].

F. Improving health and inequalities

Efficiency of healthcare system is important for improving, equity, effectiveness, and access to healthcare. Taking efficiency into healthcare delivery with full understanding of determinants of disease in specific population can provide room for improving effectiveness and equity in healthcare as evidenced by presence of avoidable wastages and inefficiency in every healthcare system. Equity should be considered during planning process along with economic evaluations[23].

G. Health care, well-being, and welfare

According to the World Health Organization (WHO), founded health care contain 4 processes as follows;

1) Prevention
2) Treatment
3) Management of illness
4) Preservation of health

Wellbeing is a keyword in the WHO definition of health: "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity"

Welfare is aimed at the well-being of individuals or groups, the general welfare of the community or society. considered to be the duty of the state must be provided for the common benefit of the public[24].

'Welfare' means 'well-being', which, if extended, can be said that is the state of being healthy, prosperous, and happy[24].

3. METHODOLOGY

We have designed a conceptual framework which is based on a systematic review. Besides, the contribution of this paper is to develop a concept for framework in health care and welfare to improve system to the future goal at equity in public health welfare system.

Therefore, to achieve that we have summarized the analyzing health care system and related health determinants in Figure 3.

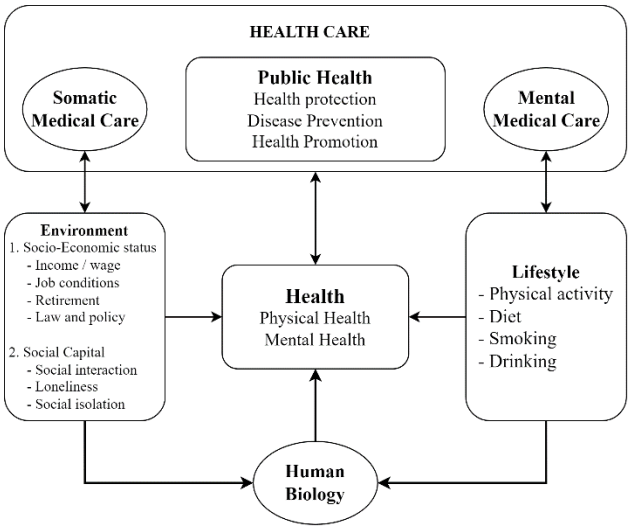

Figure 3 The relating of health care and other health determinants.

Figure 3 shows the relation of health care, health determinants both the direct and indirect determinants as following 6 keys:

1) Health care is consisting of three main systems.
    a. Public Health
        i. Health Protection
        ii. Disease Prevention
        iii. Health Promotion
    b. Somatic medical care
    c. Mental medical care
2) The direct determinants consist of three factors in health, physical health and mental health, the last determinant is lifestyle such as diet, smoking, and drinking.
3) The indirect determinant is an external factor like the environment such as socio-economic status (e.g., income/wage, job conditions, retirement, law, and policy) and social capital (e.g., social interaction, loneliness, and social isolation).
4) Linkages exist between health care and health (depicted in Figure 3 by arrows running between health care and health fields)
5) Linkages exist between health care and non-health care determinants (depicted in Figure 1 by arrows running between health care space to lifestyle, environment, and host constitution and by arrows running between the latter non-health care determinants); and
6) Linkages exist between non-health care determinants and health (depicted in Figure 3 by the arrows running from lifestyle, environment, and host constitution to the health field)

Conceptual Framework

Based on the stakeholder in current Thailand health system and the structure of public health welfare from the Thai governance, we have summarized the relation between three main stakeholder like Thai citizens, health information (the direct and indirect determinants of health) and the as-is public health welfare of Thailand that provide by governance for the scope of conceptual framework in Figure 4.

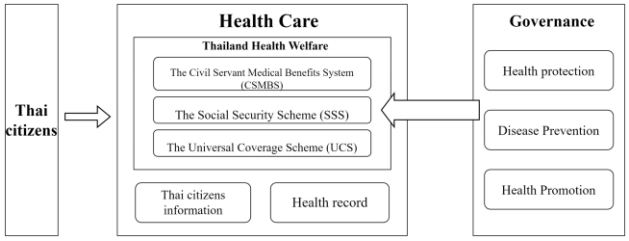

Figure 4 The relation of stakeholder in Thailand health welfare

In Figure 4, Thai citizens receive only services suited to their rights, which are supported by governance (e.g., The Civil Servant Medical Benefits System (CSMBS), The Social Security Scheme (SSS), and The Universal Coverage Scheme (UCS)).

We have designed a conceptual framework which is based on a systematic review. Besides, the contribution of this paper is to develop a concept for framework in health care and welfare to improve health system to the future goal at equity in public health welfare system of Thailand. in Figure 5.

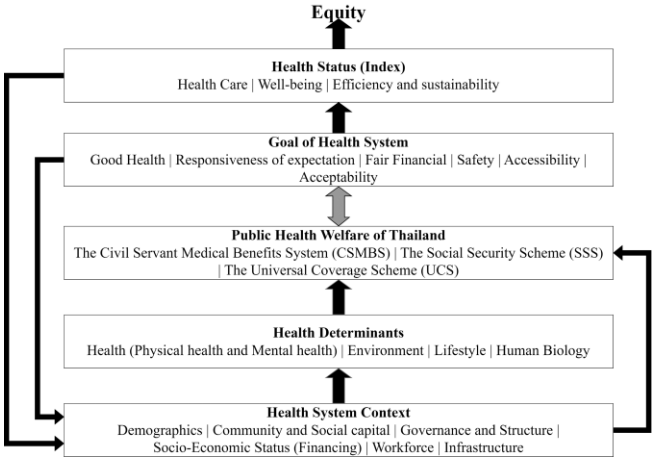

Figure 5 Conceptual Framework of Public Health Welfare in Thailand

As a conceptual framework shows the correlation between the sets of contexts as follows;

1) The health system context is the basement, which directly affects the health determinants, there are direct variables derived from health status (Index) and the goal of health system. For example, as follows;
    - Demographic
    - Community and Social capital
    - Governance and Structure
    - Socio-Economic Status (Financing)
    - Workforce
    - Infrastructure

2) Health determinants are an important parameter of health welfare system, which is influenced by the factor in health system context. For example, as follows;
    - Health (Physical health and Mental health)
    - Environment
    - Lifestyle
    - Human Biology

3) Public health welfare allocated by the governance, that can support and solve health or disease from people. For increase quality of treatment, so public health welfare system must

collect health record for evaluated the treatment solution.

- The Civil Servant Medical Benefits System (CSMBS)
- The Social Security Scheme (SSS)
- The Universal Coverage Scheme (UCS)

4) The goal of health system is the standard for evaluating and measuring the quality of the health system (according to WHO,2000). This requires measuring and evaluating the performance of each healthcare system according to the standard model of good health, responsiveness to the expectation, fair Financial, safety, accessibility, and acceptability. The results of the goal of health system can be used to guide the direction of the improved health framework and the relevant subject according to the health system context.

5) Health status (index) is the result after the goal of the health system such as health care, well-being, efficiency, and sustainability, which can be always changed following the value of the goal of the health system, and this result can show the governance a last result of public health welfare that they are provided to people. The health status directly affects the improvement of the health system context.

6) Equality in the health and welfare system is the last of the result of five processes. The result of this equality will result in people and governments having a balance in the system and services and achieving sustainable development in the future.

7) EVALUATION

The framework has been designed. We have created an expert in-depth interview (invented by Sir Francis Galton) [25] to evaluate the conceptual framework. The questionnaires were initiated from the three main goals for health systems, which consists of good health, Responsiveness to the expectation, and Fair financial from The World Health Organization, 2003 [24] and the criteria for improve health care system for equity, that consists of Quality, Efficiency, Acceptability, and Equity.

We have in-depth interviews with ten experts in the related field to collect their points of view on the questionnaires for satisfaction and acceptance in the conceptual framework of public health welfare in Thailand. To scope their view on point, therefore we have created the scenario case to support efficiency for an interview.

4. RESULTS

The summary result in expert in-depth interview is illustrated in table 2. During an interview the expert can ask researcher for help to explain the scenario case and other question in the conceptual framework. The scenario case for interview and the answer to all twelve questions can be discussed as follows;

Scenario case: If health care system (public health welfare) collect the information of people, including physical health, mental health, environment, and lifestyle since their birth until death. The Thailand health welfare system will be able to have more quality in treatment (Quality) and satisfaction (Equity) for all people (include all gender, ages, and occupation) such as fair financial in treatment. Moreover, it can also make the Thailand health welfare system has more efficient in analyzing the data such as a cause of disease and the solution for treatment from information calculating as well.

Question 1: Does collecting physical health data for symptom monitoring and treatment can lead to good health?
All experts gave a positive answer and thought collecting physical health since birth until death can be able helpful to lead to good health.

Question 2: Does collecting mental health data for symptom monitoring and treatment can lead to good health?
All experts gave a positive answer and agreed with collecting mental health because present, the mental health data is the main effect on people's physical health.
Question 3: Does collecting lifestyle data for symptom monitoring and treatment can lead to good health?
All experts agreed with collecting lifestyle data, but some experts have concern about the way to collect all lifestyle from people since birth until death.

Question 4: Does collecting environment data for symptom monitoring and treatment can lead to good health?
All experts agreed with collecting environment data, but some experts have one suggestion and one question as follows;
1) We can collect the environment data from related department such as Ministry of Commerce and Ministry of Digital Economy and Society
2) How do we know which environmental data to use to monitoring and treatment correctly?

Question 5: Does collecting physical health data for symptom monitoring and treatment can lead to a quicker response to treatment and increase the expectation of treatment?

All experts agreed with collecting physical health that very helpful.

Question 6: Does collecting mental health data for symptom monitoring and treatment can lead to a quicker response to treatment and increase the expectation of treatment?
90% of experts gave positive answers, but 10% thought mental health was too complex to show a straightforward relationship with treatment.

Question 7: Does collecting lifestyle data for symptom monitoring and treatment can lead to a quicker response to treatment and increase the expectation of treatment?
All experts agreed to collect lifestyle data to increase the expectation of treatment.

Question 8: Does collecting environment data for symptom monitoring and treatment can lead to a quicker response to treatment and increase the expectation of treatment?
Seven experts agreed with collecting the environment, but three experts disagreed because expert thought it is difficult to select to environment correctly for information in treatment.

Question 9: Is it fair to collecting physical health data for calculating medical expenses?
All experts gave a positive answer and thought collecting physical health since birth until death can be able helpful to calculating medical expense.

Question 10: Is it fair to collecting mental health data for calculating medical expenses?
40% of the experts agreed with collecting mental health to calculating medical expense, but 60 % have concern about people will not accept.

Question 11: Is it fair to collecting lifestyle data for calculating medical expenses?
All experts gave a positive answer and agreed with collecting lifestyle data to calculating medical expense, but some experts have concern people will not accept.

Question 12: Is it fair to collecting environment data for calculating medical expenses?
All experts gave a negative answer and agreed with collecting environment data to calculating medical expense, but some experts have concern people will not accept.

Table 2 The result of expert in-depth interview

Items	Criteria for improving health care system							
	Quality		Efficiency		Acceptability		Equity	
	(+)	(-)	(+)	(-)	(+)	(-)	(+)	(-)
Good Health								
Q1	+		+		+		+	
Q2	+		+		+		+	
Q3	+		+		+		+	
Q4	+		+		+		+	
Responsiveness to the expectation								
Q5	+		+		+		+	
Q6	+		+		+		+	
Q7	+		+		+		+	
Q8	+		+		+		+	
Fair financial								
Q9	+		+		+		+	
Q10	+		+			-	+	
Q11	+		+		+		+	
Q12	+		+		+			-

According to all answer and viewpoint from in-depth interview from experts, that if Thailand has to collect the information of the people, including physical health, mental health, environment, and lifestyle data from birth until death. It will enable the public and private sectors to use the information to improve the welfare system to better meet the needs of people in all sectors. From the results of the assessment, experts agree that the use of the information will result in positive trends for making people in good health (Good Health) and enabling service providers to follow up and respond well to the treatment of the service recipients, that can make the expectation of treatment tend to be better for both service providers and service users (people), but for collecting data to calculate and evaluate medical expenses reasonably, but there will be different results in mental health data collection, that can have a negative impact on public acceptability and environmental data collection can have a negative impact on equity if the social infrastructure is not adjusted

5. CONCLUSION AND DISCUSSION

5.1 Conclusion

This research has successfully developed a conceptual framework of public health welfare in Thailand, that can be effectively applied to the structure and method of the health welfare system in Thailand. It will require integration will all related sectors or departments both government and private, in order to see the most national-level results.

However, based on interviews with experts, it can be concluded that the application of the conceptual framework

of public health welfare in Thailand must consider relevant laws and policies because it is about accessing and storing, and analyzing personal data.

5.2 Discussion

From the expert in-depth interview, there are some discussions about the meaning and scope of each health determinants that will be collected in the conceptual framework. The definition of each determinant is helpful for the expert to interview or give suggestions and can clarify the meaning of the health determinant for who interested in this paper.For example, the expert suggests that the research clarifies the scope of 'Environment'. It will make the expert in-depth interview result positive when the size and definition are precise.

5.3 Limitation

The limitation of this research comes from the aim of the research is to create a conceptual framework to be developed and applied in a particular Thai context. Therefore, the health welfare system studied by the researcher will be the structure of Thailand only. Therefore, this research is appropriate for a country with a health welfare system similar to Thailand.

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Pornpimon Kiattisin was born in Tak, Thailand in 1995. She received the Bachelor of Computer Engineering from Mahidol University, Nakhon Pathom, Thailand in 2019. She is currently a master's degree student in Information Technology Management (ITM) Mahidol University. Her area of research interests are global health and framewok.

Prush Sa-nga-ngam (Ph.D.) is a lecturer in Technology of Information System Management Division, Faculty of Engineering, Mahidol University, Thailand. He received a bachelor's degree in Mechanical Engineering from Mahidol University, a master's degree in the Technology of Information System Management from Mahidol University and a Ph.D. in Information Technology Management at Mahidol University. His research interests include usability, user experience, and management information system. He is a board member of the Association of Thai Digital Industry.

Supaporn Kiattisin received the B.Eng. degree in applied computer engineering from the Chiang Mai University, Chiang Mai, Thailand, in 1995, the M.Eng. degree in electrical engineering, and the Ph.D. degree in electrical and computer engineering from King Mongkut's University of Technology Thonburi, Bangkok, Thailand, in 1998, and 2006. She is currently the program director of Information Technology Management, Faculty of Engineering, Mahidol University, Thailand. Her research interests include computer vision, image processing, robot vision, signal processing, pattern recognition, artificial intelligence, IoT, IT management, digital technologies, big data, and enterprise architecture with TOGAF 9 certified. She is a member of IEICE and TESA. She served as a Head of IEEE Thailand Chapter in Bio-Medical Engineering. She also served as the Chairman of the TimesSOC Transaction Thailand

Adisorn Leelasantitham (Ph.D.) received the B.Eng. degree in Electronics and Telecommunications and the M.Eng. degree in Electrical Engineering from King Mongkut's University of Technology Thonburi (KMUTT), Thailand, in 1997 and 1999, respectively. He received his Ph.D. degree in Electrical Engineering from Sirindhorn International Institute of Technology (SIIT), Thammasat University, Thailand, in 2005. He is currently the Associate Professor in Technology of Information System Management Division, Faculty of Engineering, Mahidol University, Thailand. His research interests include applications of blockchain technology, conceptual models and frameworks for IT management, disruptive innovation, image processing, AI, neural networks, machine learning, IoT platforms, data analytics, chaos systems, and healthcare IT. He is a member of the IEEE.