UTILIZATION OF HEALTH CENTER SERVICE AMONG THE VILLAGERS IN RURAL AREAS OF KHONKAEN PROVINCE, THAILAND

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ABSTRACT

The cross-sectional study was conducted to investigate the utilization of health center services and related factors among the villagers in rural areas of Khonkaen Province, Thailand. The factors were socio-demographic characteristics, attitude toward health center, accessibility of health center, satisfaction with health center and utilization of health center service.

A quantitative approach using structured questionnaire was undertaken among the 254 villages (86 males, 168 females) aged from 20 to 65 years old, who use or don't use the health center service and had illness in the past 6 months recall period. For data analysis, descriptive statistical analysis techniques were used to describe the frequencies and percentages of variables. The Chi-square test was used for relationship, with the significance level set at 0.05.

The result revealed that 56.7percent were between 40-59 years of age average family size was 4.6 percent. The majority of respondents were female (66.1%) and many were married (84.9%). Education level of respondents was primary school level (89.7%). The main occupation (90.2%) was agriculture. Income was sufficient and no savings for family expenses (55.5%). For attitudes towards the health center, respondents were at (53.9%) low attitude, 87.8 percent went to health center by using own transport vehicle, traveling time of respondents was 6-15 minutes (44.5 percent). 83.1percent felt that it was convenient to reach the health center. 53.8 percent had to pay 21-50 baht for each visit. 67.7 percent felt that the cost of service in health center was not expensive. And low satisfaction or dissatisfied with health center was 58.7 and 41.3 percent respectively. In the past 6 months, 67.7 percent who lived near the health center had used this kind of service. For reason not used, 30.9 percent stated that it was inconvenient to go to the health center, did not trust treatment from health personnel (18.5%) at their health center service.

Regarding the relationship between utilization and the related factors, it was found that there were significant relationships between attitude toward health center and utilization of health center service (p-value=0.000), distance (p-value=0.001), and satisfaction (p-value=0.000). However, the study did not find the any significance between socio-demographics, accessibility and utilization of health center service.

The recommendation from this study is that health personnel should have willingness and good manners to serve the patient, the quality of medicine and equipment should be improved, waiting time in the registration room be decreased by increasing staff during rush hours and the number of chairs in the waiting room should be increased.

KEY WORDS: UTILIZATION OF HEALTH CENTER SERVICE

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LIST OF ABBREVIATIONS

HFA	:	Health for All
PHC	:	Primary Health Care
WHO	:	World Health Organization
AIDS	:	Acquired Immune Deficiency Syndrome
MOPH	:	Ministry of Public Health
VHVs	:	Village Health Volunteers
GPs	:	General Practitioners
SES	:	Socio Economic Status
CI	:	Confident Interval
SD	:	Standard Deviation
ANC	:	Ante-Natal Care
PNC	:	Ante-Natal Care
SPSS	:	Statistical Package for the Social Science

CHAPTER 1
INTRODUCTION

1.1 Rational and Justification of study

Since 1978, when Alma-Ata was introduced, the networks of health service have greatly changed in health care conception, the rapid development of science lead to new challenges to health care system over the world. At the same, the government both low and high-income countries has found so many solutions to reform their health system in order to meet the goal of better health for all, increase efficiency, reduce health inequalities, protect individuals, families, communities from financial loss, and enhance fairness in the financing and delivery of health care to be consistent to the rapid changes in the society (1).

Health is fundamental right of every human being without distinction of race, religion, political beliefs, economics or social condition. As consequence, health or long life expectancy is worldwide ideal which every society should devote all effort to eradicate disease and illness through creating equity of access to health and medical services. One of the major problems in the developing world is the lack of adequate and appropriate health care infrastructure. About 80 percent of the illnesses are preventable and their occurrences reflect poverty and inadequate health prevention and promotion measure.

The World Health Assembly laid down the main social goal of Health for All by the year 2000 (HFA) in May 1977. To achieve HFA goal, the principle and strategy of Primary Health Care (PHC) approach was guided. Every developing country is striving to achieve HFA goal through the primary health care approach according to their respective national health plan aims to fulfill basic health needs of their people (2).

Health for All does not mean that in the year 2000, doctors and nurses will provide medical care for everybody in the world for all their existing ailments and that nobody will be sick or disabled. It does mean that health beings and is postured at home, in schools and in the factories, where people live and work. People will use better approaches than they do now for preventing disease and alleviating unavoidable illness and disability, and have better way of growing up, old and dying in dignity (3).

It was felt that through effort are made to achieve the goal of HFA there is the gap of success still existing between developed and developing countries and also within the same country. The consequences of such under-development often affect the vulnerable members of the community and marginal groups who are less consuming health resources (4).

The health service system in Thailand has evolved from self-reliance in the past, i.e. using local wisdom for curative care and health promotion, to the systems depending largely on modern medical and health services approaches. Under the new systems, various levels of health services were arranged, basically from self care at family level to advanced health services provided by health specialists. The "providers" and "recipients" were designated. The government sector is the main service provider, with increasing participatory roles of the private sector.

Since 2001, the new government has implemented the policy of universal health insurance or "30-Baht inclusive health care". The budgetary system and administrative system are revised, followed by the overall structural reform of Ministry of Public Health. The new system focuses on the efficiency, quality, and equity of health services, including the decentralization of various types of health agencies to become self administered, while reducing central command and facilitating rapid service provision (5).

Table 1 The percentage of outpatients at various levels of health facilities, 1977-1998.

Health Facilities	1977	1985	1998
1. Provincial Hospital	46.22%	32.36%	18.76%
2. Community Hospital	24.37%	35.92%	35.13%
3. Health Center	29.41%	31.72%	46.11%

(Source: Thailand Health Promotion 1997-1998)

From this table, the percentage of health center utilization is not more than 50% although health canters is the nearest place for the people to go and use the provided services when they get sick or have any health problem. The people can more easily access to health center than Provincial or Community Hospital. In this case the lack of utilization results in many health problems. Firstly there is wastage of resources that a large number of health centers in the country have invested in. Secondly the local owners of drug stores where people buy drugs in rural area are not trained in pharmacy. They are just like other businessman and sell drugs the same other goods. The local injection's who are most prevalent in the rural area; they are not properly trained to serve health services. So such kind of practices may be harmful to the health of the people, wastage of money and a great public health problem for the country. Thirdly effect is that many people directly pass to upper level government health service, which causes crowding in such institution and leads to low quality of services, long waits for patients in need, tension for the health administrators. Fourthly there is less of a chance of communication between health center personnel and villagers, which leads to reduce chances of getting preventive and promotive services from the health center. Because health center services are mainly concerned with preventive and promotive services which are blanketed by curative services to motivate the community people. And lastly affect the total health services system of government and health status of people are under utilization of government health centers in the rural area of Thailand is a great problem in the field of public health (6).

At present, health problem in Thailand so many kinds that especially in rural area. And this study would know about utilization of health center service, to find out the cause of this situation in the health center at KhonKaen Province. It is located in the Northeastern part of Thailand. It is approximately far from Bangkok by car 445 kilometers and by train 450 kilometers. It has an area of 10,886sq.km. There are 20 Districts (Amphur), 5 Semi-district (Ging Amphur), 198 Subdistricts, 2 Municipal area, 29 Sanitary area, 2,271 village (Mooban), 280 Community, 431,502 village house, 437,590 household. In 2003, the total populations are 1, 767,643 with 881,465 males and 886, 178 females. Average income is 40,420 baht/ person/year, main occupation is agriculture, main religion is Buddhism (98.73%). Major health problem as reported by the KhonKaen Provincial Profile are health disease (84.96%), carcinoma (all forms) 75.70%, transportation accidents 34.28%, nephritis, nephritic sympdrome and nephrosis (20.71%),diabetes mellitus (18.92%), disease of liver and Pancreas (17.37%), septicaemia(17.31%), AIDS 16.62%, disease of upper respiratory tract (15.99%) and pneumonia (14.73%).Health Personnel are 3,835 persons, Physician is 295 persons, Nurse 1,825 persons, General staff 1,715 persons, Village Healt Volunteer 22,695 persons.

Health Facilities

Regional Hospital (714 beds)	1
Community Hospital	
- 31 beds	13
- 60 beds	3
- 90 beds	2
- 120 beds	1
Private Hospital	7
Drug Rehabilitation Center (140 beds)	1
Infections Diseases Hospital (540 beds)	1
Mental Health Hospital (372 beds)	1
Private Clinic	166
Dental Clinic	28
Midwife Clinic	81
Health Center	247 …(7).

It is necessary to examine the utilization of this area and the factors related to utilization of health center service.

1.2 Research Question

What is the pattern of utilization of health centers among rural villagers in Khonkaen Province and what are the factors related to the use of this primary care service?

1.3 Research Objectives

1.3.1 General objective

To investigate the utilization of health center among the villagers in rural areas of Khon Kaen Province.

1.3.2 Specific objectives

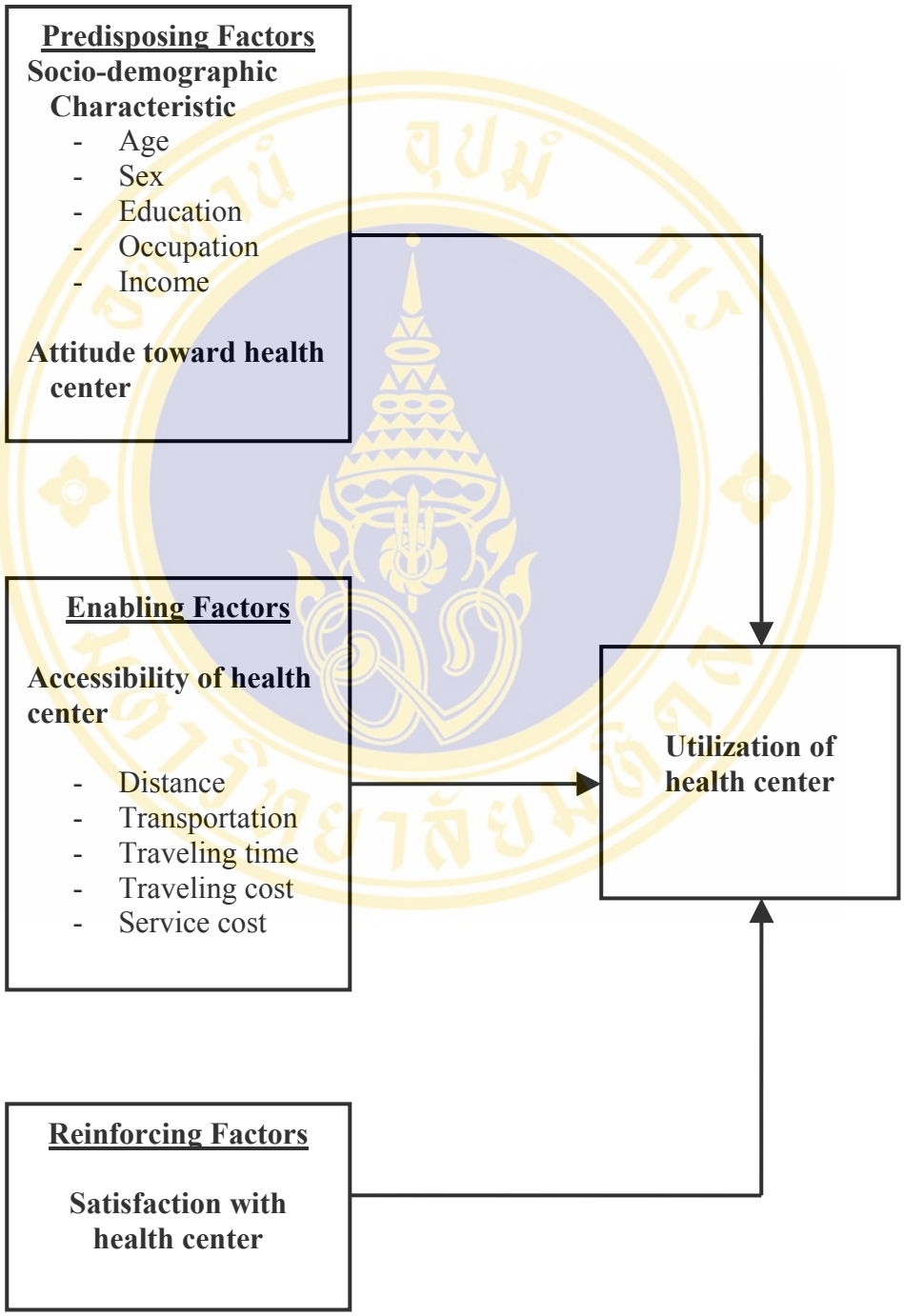
1. To reveal the pattern of utilization of health center among rural villagers.
2. To reveal the proportion of health center utilization among villagers in rural areas of Khonkaen province.
3. To describe the relationship between the utilization of health care center and socio-demographic factors, accessibility, attitudes and satisfaction with the health center.

1.4 Research Hypothesis

There are relationships between utilization of the health center and socio-demographics characteristics, attitudes towards health center, accessibility of health center and satisfaction with health center.

1.5 Conceptual Framework of Study

Independent Variables **Dependent Variable**



1.6 Operational Definition

1.6.1 Utilization of health center

The uses of health center located at the village. It refers to those who lived in this area, have ever used any kind of the last health care services during 6 months, which was available in the health center. This categorization can be categorized as using and not using the health care services.

1.6.2 Predisposing factor

Predisposing factors are those antecedents to behavior that provide the rational or motivation for the behavior.

They include the cognitive and affective dimensions of knowing, feeling, believing, valuing and having self confidence or a sense of efficacy.

Socio-demographic Characteristics

Socio-demographic Characteristics refer to age, sex, education, occupation, family income who are respondents of this study.

Age refers to real age of villagers at time of the interview or completes year of age at time of interview.

Sex refers to male and female.

Education refers to the highest level of educational obtainment which includes no education, primary school, secondary school/high school, vocation, diploma, bachelor, master.

Occupation refers to present occupation or the job of the respondents, which is categorized into agriculture, laborer, housewife, private employee and government employee, own business and other occupations.

Family income refers to total income per month of all family numbers are sufficient and have savings, sufficient and no savings and not sufficient.

Attitude toward health center:

Attitudes of the respondents toward health center services according to beliefs and affections about the importance of health center, health personnel quality of drug and medical equipments, opening hours, types of services.

1.6.3 Enabling factor

Enabling factors are the antecedents to behavior that facilitate a motivation to be realized.

Enabling factors, often conditions of the environment, facilitate the performance of an action by individuals or organizations; included are the availability, accessorily, and affordability of health care and community resources.

Accessibility of health center refers to the distance from the people's house in community to the health center in kilometer and minutes, availability of transportation facilities from the residential area to the health center, the cost of service that villagers have to pay each time they visit health center, and the waiting time before treatment, opening hour.

1.6.4 Reinforcing factors

Reinforcing factors are factors subsequent to a behavior that provide the continuing reward or incentive for the behavior and contribute to its persistence or

repetition.

Reinforcing factors are those consequences of action that determine whether the actor receives positive (or negative) feedback and is supported socially after it occurs. Reinforcing factors thus include social support, peer influences, and advice and feedback by health-care providers. Reinforcing factors also include physical consequences of behavior.

Satisfaction with health center

Satisfaction of the respondents towards with health center according to gratification of health center and health personnel in terms of skill and willingness of health personnel, location and environment of health center, quality of treatment and cost of drug and service in general.

1.7 Limitation of Study

The study was cross sectional study of utilization of health center among rural villagers in Khon Kaen province. The limitation of the study is therefore the context and conditions of particular villagers being related to collect the information concerned. The research was not able to follow up the interview procedure.

CHAPTER 2
LITERATURE REVIEW

2.1 Health Center In Rural Areas of Asian Countries.

The WHO considers the concept of health center as one of the facilities of the health system which delivers services to a defined community or area and carries out promotive, preventive, protective, diagnostic, curative and rehabilitate activities for ambulant people, but has no beds other than perhaps the few needed for emergencies and maternity care.

Most countries in Asia have adopted a formal rural health system comprising three levels: the lowest being the village level, a second level for a small group of villages and a third level for larger groups of villages. One of the main differences of rural health service organizations in Asian countries is the facility or staff to population ratio.

Table 2 Organization of level health services in various countries

COUNTRY	TYPE OF FACILITY	AVERAGE POPULATION	STAFFING PER FACILITY
Bangladesh	Health & Family Welfare Center	22,000	1 Medical Officer 1 Medical Assistant 1 Lady Family Welfare Visitor 1 Pharmacist 3-4 Support works

Table 2 Organization of level health services in various countries (Cont.)

COUNTRY	TYPE OF FACILITY	AVERAGE POPULATION	STAFFING PER FACILITY
India	Sub center	3,000 5,000	1 Health Assistance 1 Lady Health Visitor 5 Midwives 4-5 Multi purpose Health work
Indonesia	Health center	8,000-35,000	7-15 According to work load, Including one Physician
S.Korea	Health sub center	10,000	1 Public Health Side 1 Nurse Aid 2-3 Health Workers /Aides
Philippines	Rural Health Unit	20,000	4 Including Municipal Health Office
Thailand	Sub district Health Center	7,500	1 Public Health Office 1 Professional Nurse 2 Technique Nurse*

Source: Asian Development Bank (1986), (8).

Note *: KhonKaen Provincial Profile.2002.

2.2 Utilization of health service in rural area

Berman (1986) reviewed documents about Service Use and Asian Rural Health System Performance pointed out that the average per capita annual contact

with medical care is often less than two in Asia and below one in some countries. This is well below rates reported in other parts of the world (9).

In Thailand, the utilization of various health services changes over time and place. Surveys of the MOPH and Institute for Population and Social Research, Mahidol University from 1970-1985 show the increasing trend of health center utilization from 4.4% 1970 to 16.8 % in 1979 and 14.7 in 1985. Meanwhile, the percentage of self treatment and traditional healers has decreased.

In 1980, A Psychosocial Aspect of Rural Health Service in the North East Region of Thailand survey, showed that 60% of the villages have used midwife service in the past 12 month s and more than 40% have never used such services. The latter category is also divided into 2 groups, those who have never used before 28.5% and those who have use more than 12 months ago 11.9% (10).

In 1995, A study of Tuan of patterns of health service utilization of villagers in rural areas in Chantaburi Province found great numbers of people coming to commune health center to seek health care when they get sick (11).

Modern health services are important in providing scientific; they are efficient in their therapeutic techniques, and highly respected. The increasing trend in utilization of modern health facilities suggest the avenue of health care for all in the years to come. The system of health services in Thailand is a variegated network of traditional and modern health practitioners, which is deeply integrated in to traditional Thai culture patterns (12).

People use the health services when they are sick. In health care system, patients choose their health care provider among the many types of services, individual organizations and professionals. However, there are several factors that determine their pattern of health services utilization. Kosa and Robertson found that among the sick people, only one quarter or one – third went to consult a health practitioner for treatment and finally not more in two 40 percent of them seek medical

aid (13). The study on health seeking behavior in two isolated villages in Nepal show that only 30 percent of the ill population went to health center for treatment. Self treatment was found in 40 percent where as the rest remain untreated (14).

Some of these people stay out of health care and use the retail pharmacy as out-patient clinics for minimal cost, no waiting time and not far from their house. Persons who have no qualification of any sort in pharmacy mostly provide the treatment from these pharmacies. Study in Maiduguri, Nigeria found that 70 percent of people in the study area used retail pharmacy and resulted in harmful effect of the haphazard treatment. The World Health Organization (WHO) has become rightly alarmed at their harmful hazards like resistance to well know popular curative drugs and recommend stopping this trend (15).

Utilization of health service is influenced by several characteristics and one striking factor is socioeconomic factor. Generally believed that low-income group trends to under utilize health services especially preventive measures provided such as inoculations against the disease and screening for treatable disorder. It is generally due to financial cost and culture of poverty and it contributes to the higher illness rate among the poor. Culture factors also influence whether or not a person seeks formal treatment (16).

2.3 Health Services in Thailand

Health services in Thailand are classified into five levels according to the level of care as follows

2.3.1 Self-Care Level.

Services at this level include the enhancement of people's capacity to provide self-care and make decisions about health. Thai people trend to realize more about their health such as reducing smoking and performing physical activity. However, self-care approach is lessening due to greater utilization of public and private health facilities.

2.3.2 Primary Health Care level.

The primary health care services include those organized by the community in providing services related to health promotion, disease prevention curative care and rehabilitative care. The medical and health technologies applied at this level are generally in response to the community's needs and culture. Service providers are those people in the area, VHVs or other non-governmental volunteers. Clearly, the services provided are closes to self care and primary care service provision.

2.3.3 Primary Care Level.

This level of care provided by health personnel and general practitioner (GPs). The feature of Thai primary care system, in addition to provided in health centers and community hospitals is not identified exactly responsible areas as well as is not holistic care services for family level.

The Universal Health Insurance Policy of the present government aims to develop holistic primary care services system at the family level. In the near future, the picture of holistic primary care services can have been seen. The components of primary care level units are indicated as followings:

2.3.3.1 Community Health Post. A community health post is a village level health service unit established in remote areas, covering a population of 500 to 1,000 and staffed by just one community health worker (a MOPH permanent employee). Services provided at this level include health promotion, disease prevention and simple curative care.

2.3.3.2 Health Centers. A health center is a sub district or village level health service unit a first line unit, covering a population of about 1,000 to 5,000, with health staff including a health worker, a midwife and a technical nurse. The Ministry of Public Health (MOPH) is now in the process of assigning a dental auxiliary, a professional nurse, and a health technician to each large health center. Service provided at this level also includes health promotion, disease prevention and curative care. Health

staffs run health programs according to the standard procedures established by the MOPH, under the technical supervision and support of the community hospital.

2.3.3.3 Health Center of Municipalities, Outpatient Departments of Public and Private Hospitals at All Levels, and Private Clinics. At these facilities, outpatient care is provided by physicians and other health professionals.

2.3.3.4 Drug Stores. This is primary care level that provided by pharmacist or pharmaceutically-trained personnel.

2.3.4 Secondary Care Level.

Health care at this level is provided by medial and health personnel with various degrees of specialization. General and specialized facilities include the following:

2.3.4.1 Community hospitals. A community hospital is located in a district or sub-district with 10 to 150 inpatient beds, covering a population of 10.000 or more. There are doctors and other health professionals. Generally, services provided are mostly curative care, compared to those at primary care facilities.

2.3.4.2 General or Regional Hospitals and Other Large Public Hospitals. A general hospital in this category is equipped with 200 to 500 beds, while a regional hospital has over 500 beds and medical specialists in all fields.

2.3.4.3 Private Hospital. Most hospitals are operated as a business entity with both full- time and part-time staff, and clients are required to pay for services.

2.3.5 Tertiary Care.

Health services at this level are provided by medical and health professionals, mostly with specializing expertise. Tertiary Care facilities include:

2.3.5.1 Regional Hospitals

2.3.5.2 General Hospitals

2.3.5.3 University Hospitals and public large hospitals belong to Ministry as Local Administrative Organization.

2.3.5.4 Large Private Hospitals have all fields of medical specialists. Most are over 100-bed private hospitals.

The classification of health facilities mentioned above is relatively rough as a matter of fact that the tertiary care facilities also provide primary care services (5).

2.4 Concepts and theories which implemented in this study

2.4.1 The PRECEDE-PROCEED Model

The Precede model is a framework for the process of systematic development and evaluation of health education programs. An underlying premise of this model is that health education is dependent on voluntary cooperation and participation of the client in a process, which allows personal determination of behavioral practices. It also states that the degree of change in knowledge and health practice is directly related to the degree of active participation of the client. Therefore, in this model, appropriate health education is considered to be the intervention (treatment) for a properly diagnosed problem in a target population.

This model is multidimensional, founded in the social-behavioral sciences, epidemiology, administration and education. As such, it recognizes that health and health behaviors have multiple causation which must be evaluated order to assure appropriate intervention. The comprehensive nature of PRECEDE allows for application in a variety of settings such as school health education, patient education, community health education, and direct patient care settings.

PROCEED was added to the model in the late 1980s based on L.Green's experience with Marshell Krueter in various positions with the federal government

and the Kraiser Family Foundation. Its addition to the framework was in recognition of the emergence and need for health promotion interventions that go beyond traditional educational approaches to changing unhealthy behaviors. The administrative diagnosis is the final planning step to "precede" implementation. From there "proceed" to promote the plan or policy, regulate the environment, and organize the resources and services, as required by the plan or policy.

The components of PROCEED take the practitioner beyond educational intervention to the political, managerial and economic action necessary to make social systems environments more conducive to healthful lifestyles and a more complete state of physical, mental and social well-being for all.

The purpose of the PRECEDE/PROCEED model is to direct initial attention to outcomes rather than inputs. This forces planners to begin the planning from the outcome point of view. In other words, program planners begin with the desired outcome and work backward to determine what cause it (what precedes the outcome) Intervention is targeted at the preceding factors that result in the outcome. The planning process outline in the model rest on two principles:

1. The principle of participation, which states that success in achieving change is enhanced by the active participation of members of the target audience in defining their own high-priority problems and goals; and in developing and implementing solutions. This principle is derived from the community development root theories and the empowerment education model exemplified by Ferrier.

2. The important role of the environmental factors as determinants of health and health behavior such as media, industry, politics, and inequities

Circumstances that led to development

Over several decades, many articles have been published with practical implications for health education, but only a few of those have survived long-term

analysis and evaluation. Practitioners in various professions have struggled, often without clear guidelines, to systematize their planning, delivery and evaluation of health or educational programs. The PRECEDE/PROCEED framework has been designed to avoid the philosophical trap that has caught previous efforts to codify the practices of health education.

The overriding principle in this approach to health education is that health behavior must be voluntary behavior. Health means different things to different people, serves different purposes for different people, and is more or less important to different people. Because of this, it is difficult to justify the imposition of rigid criteria of appropriate health behavior unless a behavior has been judged by society as a whole to be a sufficient hazard to the common good to warrant the curtailment of individual choice.

Description of the model:

PRECEDE - The first 5 phases

Phase 1 - Social Diagnosis

Phase 2 - Epidemiological Diagnosis

Phase 3 - Behavioral and Environmental Diagnosis

Phase 4 - Education and Organizational Diagnosis

Phase 5 - Administrative and Policy Diagnosis

PROCEED- The second 4 phases

Phase 6 – Implementation

Phase 7 – Process Evaluation

Phase 8 – Impact Evaluation

Phase 9 – Outcome Evaluation

PHASE 1 – Social diagnosis

The focus of this phase is to identify and evaluate the social problems that impact the quality of life of a target population. This requires program planners to

gain an understanding of the social problems. Which affects the quality of life the patient, consumer, student, or community, as those populations see those problems? This is followed by the establishment of a link between these problems and specific health problems, which may become the focus of health education. The link is essential in life and, in turn, how the quality of life affects social problems. Methods used for social diagnosis may be one or more of the following:

- Community Forums
- Nominal Groups
- Focus Groups
- Surveys
- Interviews
- Central location intercept

PHASE 2 – Epidemiological diagnosis helps to determine health issues Associated with the quality of life. It helps identify behavioral and environmental factors related to the quality of life issues. The focus of this phase is to identify specific health problem and non-health factors, which are associated with a poor quality of life. Describing these health problems has the following advantages: 1.) Help establish relationship between health problems, other health conditions, and the quality of life. 2.) Lead to the setting of priorities that will guide the focus of program development and resources utilization. 3.) Make possible the delineation of responsibilities between involved professionals and organizations and agencies. These priorities are defined as program objectives that define the target populations (WHO), the desired outcome (WHAT), and HOW MUCH benefit the target population should benefit, and by WHEN that benefit should occur. Examples of Epidemiological data:

- vital statistics
- years of potential life lose
- disability
- prevalence
- morbidity

- incidences
- mortality

From phase 1 and 2 program objectives are created – that is the goal or goals You hope to achieve as a result of implementing this program

PHASE 3- Behavioral and environmental diagnosis

This phase focus on the systematic identification of health practices and other factors that seem to be liked to health problems defined in Phase 2. This includes non-behavioral causes (personal and environmental factors) that can contribute to health problems, but are not controlled by behavior. These could include genetic predisposition, age gender, existing disease, climate, and workplace, the adequacy of health care facilities, etc. Also assessed are the behaviors, which cause health problems in the target population. Another important of this phase is the determination of the importance and relative change ability of each behavioral cause. It is critical that a behavioral diagnosis is completed for each health problem identified on Phase 2. This will allow all the planners to choose target behaviors, which will become the focus of specific educational interventions.

Behavioral Diagnosis is the analysis of behavioral links to the goals or problems that are identified in the epidemiological or social diagnosis.

Environmental Diagnosis is a parallel analysis of factors in the social and physical environment other than specific actions that could be linked to behaviors.

The Behavioral Matrix: This help to identify targets where the most effective intervention measures can be applied.

Table 3 The Behavioral Matrix

	More Important	**Less Important**
More Changeable	High Priority Quadrant I	Low Priority Except for Political Reasons Quadrant III
Less Changeable	Priority for Innovations Assessment Crucial Quadrant II	No Program Quadrant IV

Behavioral objectives are created from Quadrants 1 and 2 Quadrant 3 is used more for political reasons

PHASE 4 – Educational diagnosis

This phase assesses the causes of health behaviors, which were identified in Phase 3. Three kinds of causes are identified – predisposing factors, enabling factors and reinforcing factors. The critical element of this phase is the selection of the factors, which if modified, will most likely lead behavior change. This selection process includes identifying and sorting (positive and negative) these factors in appropriate category, prioritizing factors among categories and prioritizing with categories. Prioritization of factors is based on relative importance and changing ability. Learning objectives are then developed which focus on these selected factors.

Pinpoints the factors that must be changed to initiate and maintain behavioral change. It is during this phase that specific intervention objectives are created and the intervention itself will be implemented. Education and organizational diagnosis looks at the specifics that hinder or promote behaviors related to the health issue.

Predisposing Factors – any characteristics of a person or population that motivates behavior prior to the occurrence of that behavior

Knowledge

Beliefs

Values

Attitudes

Enablers – characteristic of the environment that facilitate action and any skill or resource required to attain specific behavior

Accessibility

Availability

Skills

Laws (local, state, federal)

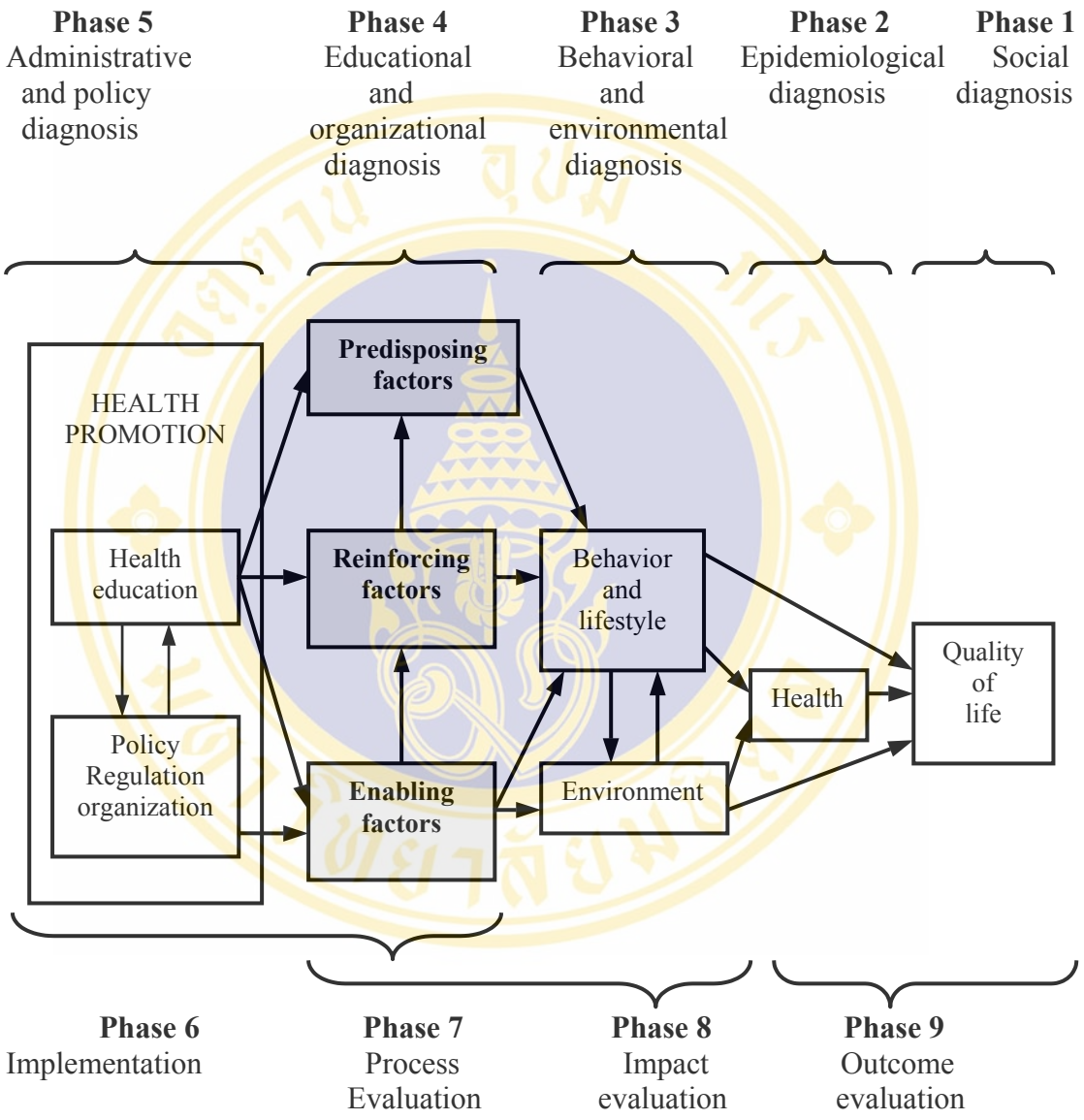
Reinforces – rewards or punishments following or anticipated as a consequence of a behavior. They serve to strengthen the motivation for behavior

Family

Peers

Teacher

PRECEDE



PROCEED

Figure 1 Educational and Organizational Diagnosis: Factors Affecting Health-Related Behavior and Environments (Lawrance W and Marshall W. Kreuter,1991)

Application of the model

The classification of factors affecting behavior into predisposing, reinforcing, and enabling categories makes it possible to group the specific features of the situation according to the types of interventions available in health education and health promotion:

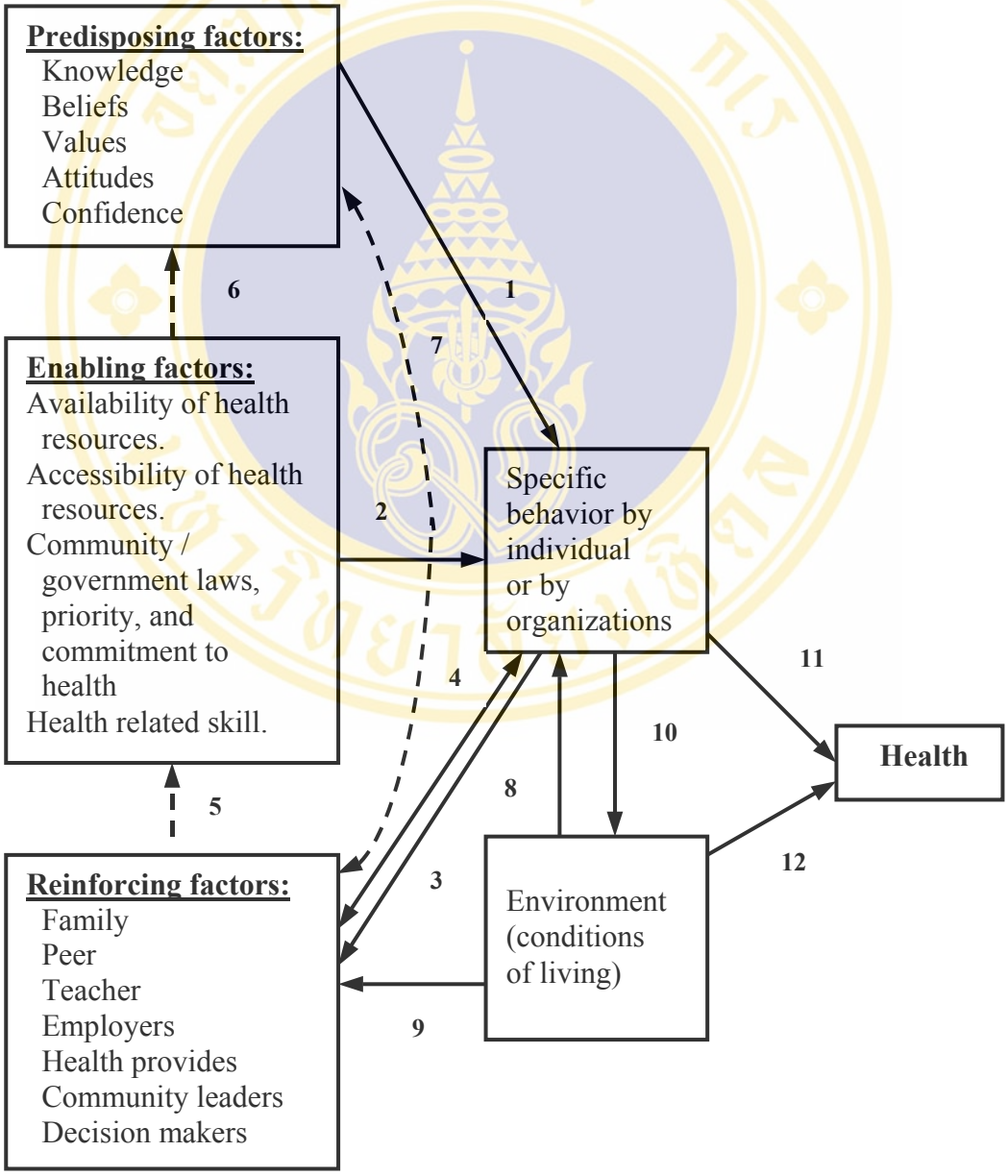


Figure 2 Application of the model (Lawrence W. Green and Marshall W. Kreuter, 1991)

Figure 2: The causal relationships and order of causation for the three sets of factors influencing behavior. Solid lines imply contributing influence. Dashed lines imply secondary effects. Numerals indicate order in which actions or influences usually occur.

Direct communications to the target population to strengthen the predisposing factors.

Indirect communications through parents, teachers, clergy, community leaders, employers, peers and others to strengthen the reinforcing factors.

Community organization, political interventions, and training to strengthen the enabling factor.

PHASE 5 – Administrative and policy diagnosis

This phase focuses on the administrative and organizational concerns, which must be addressed prior to program implementation. This includes the assessment of resources, budget development and allocation, development of an implementation timetable, organization or personnel within programs, and coordination of the program with all other departments, and institutional organizational and the community.

Administrative Diagnosis - the analysis of policies, resources and circumstances prevailing organizational situations that could hinder or facilitate the development of the health program.

Policy Diagnosis – to assess the compatibility of your program goals and objectives with those of the organization and its administration; does it fit into the mission statements, rules and regulations.

PHASE 6 – Implementation of the program

PHASE 7 – Process evaluation is used to evaluate the process by which the program is being implemented.

PHASE 8 – Impact evaluation measures the program effectiveness in terms of intermediate objectives and change in predisposing, enabling, and reinforcing factors.

PHASE 9 – Outcome evaluation measures change in terms of overall objectives and changes in health and social benefits or the quality of life. It takes a very long time to get results and it may take years before an actual change in the quality of life is seen.

KEY TERMS

PRECEDE is an acronym for Predisposing, Reinforcing, Enabling, Cause in, Educational Diagnosis and Evaluation.

PROCEED is an acronym for Policy, Regulatory, Organizational Constructs in Educational and Environmental Development (17).

2.5 Problem about utilization of health center

The myth of the medical care system, which was said to serve the majority, is very clear in the finding of WHO report. The report quotes that “80% of the people living in the rural area contribute 75% of national production and be able to receives and 80% of our doctors. 9% of our hospital beds serve only 20% of the population (18).

Change in health status of the people shows that the intensity of health problems in the rural areas is still high. Al though infant mortality rate has already declined in Bangkok. In central and southern regions still have higher maternal

mortality rate. Northern and Northeastern regions still have higher rate of infant mortality (19).

In Thailand the elimination of barriers to the use of modern health services have been the goals of the government for many decades. At the beginning of the 1980, definite plans were implemented to increase accessibility in three aspects, namely eliminating geographical distance, reducing the monetary cost of services and bridging the socio gap between modern health practices and patients (20).

Problem of Health Services Efficiency: Curative care is much less efficient with regard to its capacity in making people healthy, compared to promotive and preventive care. Besides, for the curative service system itself, inefficiency is found in items of, for example, drug over utilization (from the community level up to medical specialist level), irrational technological use, and wasteful spending (5).

In 1986, Dutton, explaining the low use of health service by the poor, argued that they have a high rate of morbidity and they are more likely to seek symptomatic care while they more-poor are likely to seek preventive care. Thus the poor appear to have more sickness. She noted that system barrier is the strongest one to explain the low use. She noted that the low income people confronted a lack of preventive examination: physicians had little time for counseling or giving preventive care, with high charges, long waiting time and poor a significant barrier that discoverage low income persons to seek medical care, above and beyond the effects of the financial barrier or negative attitude to ward professional care. Low utilization was seemed as a normal response to an unpleasant situation (21).

Coverage of Health Insurance: The trends of health services in Thailand are rising to cover all the people under such schemes as the revolving fund for medical services, voluntary health insurance, social security, students' health insurance, workmen's compensation fund, and insurance for road traffic accident victims. As of 1998, approximately 80.3 percent of the Thai people have been covered with health insurance of one scheme or another (5).

2.6 Previous research on factors in relation to utilization of health center service

In researches study and sociologist have been trying to determine the behavior and attitude of utilization of different types of health services. But the factors are not similar in each community and it is different in different communities. There are factors;

Socio-demographic characteristic

Socio-demographic status is commonly mentioned as an importance factor affecting the choice of health provider in rural communities. More importantly, it also affects the decision of whether or not to seek treatment.

The findings for age and sex have been consistent: use of health service is greater for females than for males and is greatest for the elderly (22).

In study of Shrestha (1993) of factors affecting the utilization of rural health center in Thailand, there was a significant association between occupation, economic status and utilization of health center service, but none with education status.

Thus, it can be the fact that there is a relationship between socio-demographic status and health utilization and that socio-economic factor affect regions differently. Significant determinants of this country may not be so in another but age, sex, education and income are the predominant factors of SES that were emphasized in many papers (23).

Attitude toward health service

Attitude of the local health services and delivery system has a positive relationship with curative service utilization. To success to improve people's health, they must have an understanding of prevailing health problems and of appropriate methods of preventing and controlling them. It is health literacy. If they have high

degree of understanding of health problems and way of solving them the behavior and attitude would be changed. So utilization of health service center obviously cannot occur if one doesn't know about the availability of the services (3).

Accessibility of health center

Health care system factors, especially the accessibility, have received the most attention in rural health services. Perhaps reflecting the preferences of administrators and the tools most easily available to government programs, public programs have focused primary on reducing the cost to extend rural service delivery to remote villages and districts. Some countries have explicit targets for distance to service (Burma, Pakistan) or walking time (Papua New Guinea). Services are provided free of charge (India – Sri Lanka) or at a normal fee (24).

The people in the urban and rural areas have unequal opportunities in accessing health services. The urban people have greater chances in gaining health services from health facilities due to more availability of physicians. After the economic crisis, urban people are greater likely to seek self-prescribed drugs.

In 1998, Supasit Pannarunothai conducted a study on the equity to access health services by using the diffusion index and the concept of service provision according to health needs. The findings revealed that the acute illnesses were higher found in the poor than the rich when applying the adjusted or non-adjusted value methods (by age group and sex). In aspects of the overall service utilization including self-prescribed medication and institutionalization), it highly implied greater use of the rich, as well (CI value is positive). In other words, there was greater service utilization of the wealthy from health facilities whereas less actual sicknesses. In 1991, accessibility to health services of the poor, however, was inclined to improve. (CI value is negative) (5).

Satisfaction with health center.

In one study on orientation to health services, in chapter the client states that patient's perception of hospital care and their hospital experience bear little relationship to the technical, quality of care they receive, they expect high quality care. Their judgments care formed from human interaction, they have had with the gamut of hospital personnel (25).

Attitude Scaling Method

Attitude scales are relating crude measuring instruments and we must not expect too much from them. Their chief function is to divide people roughly into a number of broad groups, with regard to a particular attitude. Such scales can not by themselves be expected to provide us with subtle insight in an individual case. They are technique for placing people on a continuous in relation to one another, in relation and not in absolute it is impossible to say which method is best. Each has imported desirable features but each of them is also open to criticism. If we wish to stay attitude-patterning or explore theories of attitudes then probably the likert procedure will be the most relevant.

Likert's primary concern was unidimenionality making sure that all the items would measures the same thing. He also wanted to eliminate the need for judges by getting subjects in a trial sample to place themselves an attitude continuous for each statement running from "Strongly agree" to "agree" "uncertain" "disagree" and "strongly disagree". These five positive were given simple weights of 5, 4, 3, 2, and 1 for scoring purposes after more complex scoring methods had been show to possess no advantages.

To produce a Likert Scale we proceed as follows; first as usual we composs an item pool. However for the Likert procedure it is best not to be have neither many neutral items nor many extremes at either end of the continuum. Next we score the record of each respondent. To do this we must decide whether we want a high scale

score to mean a favorable or unfavorable attitude. If doesn't mater what we decide but from then on we must be consistent. If we decide that a high score on the scale will mean a favorable attitude, then favorable statement must be scored 5 for "strongly agree" down to 1 for "strongly disagree" and unfavorable statement must be scored 1 for "strongly agree" up to 5 for strongly disagree". If we decide that high score will mean an unfavorable attitude then the opposite system of scoring will apply (26).

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study design

This study attempts to find out the relationship with utilization of health center among rural villagers living near this health center service in Sawathi Sub-district, Khonkaen District, Khonkaen Province, Thailand.

3.2 Study population

The target populations in this study are villagers who live near health center in the rural area of Sawithi Subdistrict, Khonkaen District, Khonkaen Province. A health center was randomly selected from a list of health centers in Khonkaen Province. First, multi-stage random selection was applied. District was chosen first out of the total districts of Khonkean Province. One district being located, a list of health center was district into one health center. From six villages were randomly selected criteria of selection villagers age group 20 and >60 years old, both male and female, who usually use and not use the health center. Who are living near this health center and had the illness in past 6 months will be interviewed.

3.3 Sample size

The area of this study was in Sawathi Subdistict, Khonkaen District of Khon Kaen Province and this was based on calculation from the following formula:

$$n = \frac{Z^2_{\alpha/2} PQ}{d^2}$$

With:

n = Number of sample size

z = Standard normal variation (95% confidence interval, z = 1.96);

p = Estimated proportion of utilization of health center service of KhonKaen Province. (Reference from Nakorn Pathom Health Profile 1998, p= 39%). **(27)**

q = Proportion of population using government health service, which is Estimated equal to 0.39. Q =1-P = 1-0.39 = 0.61.

d = Degree of accuracy set at 0.06

So the required sample size was 254.

$$n = \frac{(1.96)^2(0.39)(0.61)}{(0.06)^2} = 253.86$$

$$n = 254$$

3.4 Sample selection

In this study, villagers are living near the health center were interviewed. There are about 254 persons included: age group 20and >60 years old, both male and female, who usually use and nonuse health center had illness in past 6 months were selected from health center. For the number of the sample size, we calculated the proportion of respondents from each village by using the population of each village divided by the total population of the sub-district was (7,337 peoples) and multiplied by 100% in order to make the proportion to percentage. The data was collected from January, 31st to February 5th 2005. According the population of the villagers, the researcher had purposively selected the villagers in 6 villages and continuous to interview of the total 254 respondents.

The percent of the population in village No. 1 was

$$= \frac{2,355 \times 100}{7,337} = 32.09\%$$

The percent of population in village No.1 = 32.09% Next we calculated by using 32.09 divided by 100 and multiplied by the sample size (254)

$$= \frac{32.09 \times 254}{100} = 81.50 \approx 82$$

The number of respondent from village No. 1 was 82 peoples. We use the similar calculation for each village, as show in the table **4**

Table 4 The proportion of the sample size from each village

No.	Village	Total population	Percent of respondents	Number of respondents
01	Nonrang	2,355	32.09	82
02	Nontoun	259	3.56	9
03	Phiaphan	708	9.64	24
04	Latnaphain	1,753	23.89	61
05	Nongpin	1,628	22.18	56
06	Hinkao	634	8.64	22
Total		**7,337**	**100**	**254**

3.5 Research instrument

Data was collected with constructed questionnaire. Most of the questions in the questionnaire consist of closed questions but some was open ended. English questionnaire was translated into Thai language**.** Structured questionnaire consisted of 4 parts as follows was utilized for data collection:

Part 1: Socio-demographic characteristics

The questions of this part were included socio-demographic characteristics of the respondents. It consists of age, sex, marital status, status of your family, family size, children number, education, main occupation, type of residence ownership, income and economic status. Most of the questions were closed-ended**.**

Part 2:Predisposing Factors

Attitudes towards health center services

The questions were concerned about attitudes towards health center service. The villagers' feeling or thoughts about the services of the health center. The questions asked the opinion of the respondents and measured by giving degree of agreement. It had 5 choices, that were strongly agree, agree, don't know or not sure, disagree and strongly disagree. The attitude of respondents towards health center services, we had 5 answers for each question in this part, we gave the score according to the degree of attitude (5=strongly agree, 4=agree, 3=don't know/not sure, 2=disagree, 1=strongly disagree).

While the overall attitude was classified into:

Low attitude < Mean

High attitude > Mean

Part 3:Enabling Factors

Accessibility of Health Center

The questions asked the respondents about the distance from theirs houses to health center, cost of travel to health center, what kind of vehicle, any problems about travel or transportation

Part 4:Reining Factors

Satisfaction with health center service

For satisfaction with health center service, the question of this part concerned about the villagers' gratification with health center service by giving 3 level for choosing of responses that were satisfied =3, not sure = 2, and dissatisfied = 1. The questions asked about quality of services, drug, treatment, cost of drug and services, and skill and willingness of health personnel.

While the overall satisfaction was classified into:

Dissatisfied < Mean

Satisfied > Mean

3.6 Pre-test

The questionnaires were pre-tested for the reliability test of the attitude part and satisfaction for 30 cases. The respondents were purposively select from the villager who live nearly Saravanh health center. The pre-test was on January 9th 2005 in Salaya Sub-District, Phuthamon Thon District, Nakhornpathom Province by the trained interviewers. According to the reliability test of questionnaire used α-coefficient method. It revealed that the α-coefficient attitude part was 0.7859 and satisfaction part was 0.6062. After improving and changing the meaning in to easier questions to make sure that respondent could understand and also the number of

questions. This question was valued feedback from interviewer in those parts. Then we test again with α-coefficient of attitude part increased to 0.8090 and satisfaction part increased to 0.7746.

3.7 Data collection

The data are collected by interviewing the head of household. In case of the male and female was not available; the interviewer would ask the other people in that household who could answer that one should be 20 and >60 years old among the villagers in rural areas of Sawathi Subdistrict, Khonkaen District, Khonkaen Province. Regularly checked to increase accurate of measurement. After interview, the interviewer had to check all of the questionnaire items and complete filling. The interviewers were trained clearly and correctly understand the questionnaire in order to complete all questions. They also had to practice to ask the questions before going to interview the villagers.

3.8 Data analysis

Data was coded analyzed by using a computer. SPSS program.

The data were analyzed according to each objective of research. To describe each variable included into the study by percentages, mean and standard deviation were applied based upon type of variables. The evaluation of whether the association between independent and dependent variable was significant or not was analyzed by Cross-Tabulation, Chi-square test.

3.8.1 Statistics

To describe each variable included into the study by percentages, mean and standard deviation were applied based upon type of variables. The evaluation of whether the association between independent and dependent variable was significant or not was analyzed by Cross-Tabulation, Chi-square test.

CHAPTER 4
RESULTS

The data were colleted from 254 rural villagers in six villages who live near Nonrang Health Center Service. As mentioned in the methodology chapter, the majority of respondents were living near to health center in Sawathi Sub District, Khonkaen District, Khonkaen Province.

Result was described into 2 parts, descriptive part and analytic part. The descriptive part presented in 3 sections. There were, predisposing factors (socio-demographic characteristics, attitude towards health center), enabling factors (accessibility of health center), and reinforcing factors (satisfaction with health center). The analytic part presented the relationships between utilization of the health center service and socio-demographics characteristics, attitudes towards health center, accessibility of health center and satisfaction with health center.

Part I: Descriptive of all independent variables

4.1 Socio-demographic characteristic

Table 5 shows the distribution of socio-demographic factors among the respondents. Large proportion of the respondents (56.7 percent) is in ages between 40-59 years and mean age of the villager is 47 years. As expected, the family size in average is (4.6 persons) and a large proportion of family with 4-5 persons is (52.0 percent). The respondents mostly 48.0 percent are wife/husband of household head. The majority of respondents are female (66.1 percent) and many are married (84.9 percent). The large proportions of respondents have 2-3 children (52.8 percent). The education level of respondents was primary school level (89.7 percent). The main occupation of respondents, 90.2 percent was agriculture. The respondents (93.3 percent) mostly have their own house. The respondents' income was sufficient and no

savings for family expenses (55.5 percent) and economic status was moderate (94.9 percent).

Table 5 Number and percentage of respondents classified by socio demographic

Socio-demographic factors	Number	Percent
Age: (age group)	**254**	
20-29 years	21	8.3
30-39 years	46	18.1
40-49 years	70	27.6
50-59 years	74	29.1
60 + years	43	16.9
(mean = 47.3, SD = 11.4, min = 21, max = 65)		
Sex	**254**	
Male	86	33.9
Female	168	66.1
Marital status*	**252**	
Single	8	3.2
Married	214	84.9
widowed, divorced, separated	30	11.9
Status in your family	**254**	
head of household	107	42.1
wife / husband of household head	122	48.0
other (specify)	25	9.9
Family size	**254**	
1-2 persons	17	6.6
3 persons	38	15.0
4-5 persons	132	52.0
6 + persons	67	26.4
(mean = 4.6 , SD = 1.5 , min = 1, max = 10)		

Note: * Missing 2 cases.

Table 5 Number and percentage of respondents classified by socio demographic (continued)

Socio-demographic factor	Number	Percent
Children number**	**246**	
1 person	61	24.8
2-3 persons	130	52.8
4 + persons	55	22.4
(mean = 2.7, SD = 1.9, min = 1, max = 9)		
Education***	**252**	
primary school	226	89.7
high school and higher education	26	10.3
Main occupation	**254**	
agriculture	229	90.2
non agriculture	25	9.8
Type of residence ownership	**254**	
own house	237	93.3
other (live with kinds)	17	6.7
Income	**254**	
sufficient and have savings	45	17.7
sufficient and no savings	141	55.5
not sufficient	68	26.8
Economic status	**254**	
Moderate	241	94.9
Poor	13	5.1

Note: ** Missing 8 cases

***** Missing 2 cases**

4.2 Attitude toward health center.

In this part there are 18 questions about the attitude towards health center (10 positive and 8 negative questions). There are 2 kinds of statements, positive and negative statements, the question 1, 2, 3, 4, 5, 11, 12, 13, 14, and 15 in table 3 are positive statements and the rest are negative statements. The answers for this part is strong agree, agree, not sure, disagree, and strong disagree for the respondents to choose. The score of the positive answer can be scored as 5 for strong agree, 4 for agree, 3 for not sure, 2 disagree and 1 for strong disagree. For the negative answer can be score as 1 for strong agree, 2 for agree, 3 for not sure, 4 disagree and 5 for strong disagree, which is the opposite way with the positive answer. Overall attitude score is 80. The average attitude score is 60.2 (SD = 7.2), minimum score is 37 and the maximum score is 80. The level of attitude divided into 2 groups as low attitude and high attitude by using mean as the cut point. The score of respondent had low attitude 53.9 percent (<60.2 score) and high attitude 46.1 percent (> 60.2 score) toward health center service.

From table 6, after divided as the criteria mentioned above, the majority of respondents 53.9 percent are low attitude toward health center.

Table 6 Number and percentage of respondents classified by level of attitudes level towards health center

Attitude level	**Number N = 254**	**Percent**
Low attitude (< 60.2 score)	137	53.9
High attitude (> 60.2 score)	117	46.1
(mean = 60.2 , SD = 7.2, min = 37, max = 80)		

Regarding the details of attitude questionnaire from table 7, a majority (62.6 percent) of the respondents gave strongly agree with the following there aspects that the health center is useful to improve health status of community, health center charges lower cost than drug store (55.9 percent), health center is clean and has good environment (59.1 percent).

On the other hand, less than half of the respondent's (44.5 percent) strongly agreed that health center is better than drug store or private clinic in term of travel convenience, and 41.7 percent strongly agreed on health center location appropriate for your village, 40.2 percent strong agreed on heath center can providing treatment for simple illness and injury, 39.4 percent on health center providing free services for all people, 31.1 percent on health center providing effective medicine than private clinic and 26.0 percent agreed on the use of health center at all the time. The percentage of the attitude by item is shown in table 7 below.

Table 7 Number and percentage distribution of respondents classified by level of attitudes towards health center

No	Statement	Scale of Agreement (N=254)					Mean (S.D)
		strong agree (%)	agree (%)	not sure (%)	disagree (%)	strong disagree (%)	
1	Health center is useful to improve health status of community.	159 (62.6)	84 (33.1)	4 (1.6)	5 (2.0)	2 (0.8)	4.55 (0.7)
2	Health center is better than drug store or private clinic in term of travel convenience.	113 (44.5)	99 (39.0)	23 (9.1)	18 (7.1)	1 (0.4)	4.20 (0.9)
3	Health center provides effective medicine than private clinic.	79 (31.1)	81 (31.9)	58 (22.8)	35 (13.8)	1 (0.4)	3.80 (1.0)
4	Health center charges lower cost than drug store.	142 (55.9)	81 (31.9)	17 (6.7)	13 (5.1)	1 (0.4)	4.38 (0.8)
5	Health center must provide free services for all people.	100 (39.4)	90 (35.4)	28 (11.0)	34 (13.4)	2 (0.8)	3.99 (1.0)
6	Health center services hour is not suitable for you.	49 (19.3)	76 (29.9)	37 (14.6)	72 (28.3)	20 (7.9)	3.24 (1.2)
7	When you go to health center, you have to wait for a long time.	39 (15.4)	70 (27.6)	41 (16.1)	91 (35.8)	13 (5.1)	3.12 (1.2)
8	Health personnel do not pay attention and listen to you about your health problems.	51 (20.1)	68 (26.8)	19 (7.5)	90 (35.4)	26 (10.2)	3.11 (1.3)
9	When you go to health center the health personnel are always absent.	44 (17.3)	45 (17.7)	56 (22.0)	102 (40.2)	7 (2.8)	3.07 (1.1)
10	The quality of drug in drug store or private clinic is better than health center.	46 (18.1)	56 (22.0)	79 (31.1)	65 (25.6)	8 (3.1)	3.26 (1.1)
11	Health center is clean and has good environment.	150 (59.1)	86 (33.9)	9 (3.5)	8 (3.1)	1 (0.4)	4.48 (0.7)
12	The health center's medical equipment is modern.	41 (16.1)	63 (24.8)	97 (38.2)	52 (20.5)	1 (0.4)	3.36 (0.9)
13	Health center has drug and medical equipment enough for treatment.	23 (9.1)	62 (24.4)	103 (40.6)	60 (23.6)	6 (2.4)	3.14 (0.9)
14	Health personnel always visit your house.	47 (18.5)	72 (28.3)	67 (26.4)	57 (22.4)	11 (4.3)	3.34 (1.1)
15	You can use provide at health center all the time.	66 (26.0)	72 (28.3)	66 (26.0)	47 (18.5)	3 (1.2)	3.59 (1.0)
16	You can not trust treatment or diagnosis from health personnel.	31 (12.2)	87 (34.3)	53 (20.9)	70 (27.6)	13 (5.1)	3.21 (1.1)
17	Health center location is not appropriate for your village.	106 (41.7)	51 (20.1)	20 (7.9)	62 (24.4)	15 (5.9)	3.67 (1.3)
18	Health center can provide only treatment for simple illness and injury.	102 (40.2)	88 (34.6)	26 (10.2)	35 (13.8)	3 (1.2)	3.99 (1.0)

4.3 Accessibility to health center

Table 8 shows the average distance between health center and respondent living place. 39 percent respondents lived within the distance of 2-3 km and the majority of them 87.8 percent went to health center by using own transport vehicle. The average traveling time of respondents was 6-15 minutes. Majority of the respondents (83.1 percent) felt that it is convenient to reach the health center. About half of the respondents (53.8 percent) had to pay 21-50 baht for each visit and 84.4 percent villagers considered this cost as an appropriate amount. The 67.7 percent of them realized that the cost of service in health center was not expensive, 75.2 percent villagers were satisfied with the service time and 96.3 percent were satisfied with the service schedule.

Table 8 Number and percentage of respondents classified by accessibility of health center.

Accessibility of health center	Number	Percent
Distance	**254**	
< 1 Km	42	16.5
1-2 Km	77	30.3
2.1-3 Km	99	39.0
> 3 Km	36	14.2
(mean = 2.5, SD = 0.9, min = 1, max = 4)		
Transportation*	**254**	
Walking	24	9.4
your own vehicle	223	87.8
Public car	7	2.8
Traveling time	**254**	
< 6 minutes	29	11.4
6-15 minutes	113	44.5
16-40 minutes	112	44.1
(mean = 15.9, SD = 7.4, min = 5, max = 40)		

Table 8 Number and percentage of respondents classified by accessibility of health center (continued)

Accessibility of health center	Number	Percent
Convenience	**254**	
convenience	211	83.1
no convenience	43	16.9
Transportation problem	**254**	
problem	54	21.3
no problem	200	78.7
Traveling cost**	**106**	
20 baht	49	46.2
21-50 baht	57	53.8
(mean = 1.5, SD = 0.5, min = 1, max = 2)		
Suitable cost***	**109**	
appropriate	92	84.4
not appropriate	17	15.6
Cost of service in health center	**254**	
expensive	8	3.2
reasonable	74	29.1
not expensive	172	67.7
Service time	**254**	
know	191	75.2
don't know	63	24.8
Service schedule****	**191**	
appropriate	184	96.3
not appropriate	7	3.7

Note: ** 106 from transportation*, your own vehicle 99 persons and public car 7 persons, Missing 148 cases.
***** Missing 145 cases not applicable, because some of them have own vehicle.**
****** Missing 63 cases not applicable, because they don't know service time.**

4.4 Satisfaction level with health center

As explained in chapter3, methodology chapter, a satisfaction is now comprise of dissatisfy and satisfied of health center. There are 18 questions about satisfaction (12 positive and 6 negative questions). The respondents were asked to choose one answer from each question as satisfied, not sure and dissatisfied. Satisfaction is therefore divided into negative and positive statement the same as in the attitude part.. For the positive statement, the score are given 3 for satisfied, 2 for not sure and 1 for dissatisfied and negative statement, the score are 1 for satisfied, 2 for not sure and 3 for dissatisfied which is the opposite way with the positive statement. The total score for satisfaction is 54 score. The minimum and maximum score that the respondent can do are 36 and 54, respectively. While the averages score is 45.0 score and SD is 4.1. The level of satisfaction is classified into 3 levels as satisfied, not sure and dissatisfied. The cut of point for satisfaction is divided as the score 58.7 percent of the total satisfaction score is low satisfaction and 41.3 percent of the score is high satisfaction with health center.

For the overall satisfaction, the result shows that there low satisfaction or dissatisfied with health center is 58.7 percent and 41.3 percent is in satisfaction with their health center as show in table 9.

Table 9 Number and percentage of respondents classified by level of satisfaction with health center service.

Satisfaction	**Number** **N = 254**	**Percent**
Dissatisfied (< 45.0 score)	149	58.7
Satisfied (> 45.0 score)	105	41.3
(mean = 45.0, SD = 4.1, min = 36, max = 54)		

Regarding the detailed question about the satisfaction (table 10), almost all of the respondents satisfied with good services at health center (98.0 percent), and 93.7 percent are satisfied with the explanation of health personnel, and location of health center convenient is 92.1 percent, cost of treatment and drug at health center (93.7 percent) is satisfied willingness of health personnel to serve you is 94.1 percent, health personnel serious s is 94.9 percent, cleanness of health center is 95.3 percent, and the quality of treatment at health center is good enough for you 89.4 percent, 88.2 percent gave fast services from health personnel, active and helpful of personnel is 86.2 percent and 75.6 percent indicated treatment at health center is good enough for you.

On the other hand, half of the respondent's finding 57.5 percent is dissatisfied health personnel do not gave friendly, 52.8 percent are dissatisfied with long queue of waiting time at health center. Among the villagers, 47.6 percent are satisfied with the treatment providing at private clinic/hospital more than health center. And they are dissatisfied with health personnel behavior where 47.2 percent talk impolite, 37.8 percent cannot clearly answer or explain their health problem in health center. The percentage of the satisfaction by item is shown in table 10 below.

Table 10 Number and percentage of satisfaction level with health center.

No	Statement	Scale of Agreement (N=254)			Mean (S.D)
		Satisfied (%)	Not sure (%)	Dissatisfied (%)	
1	You are satisfied from getting good services at health center.	249 (98.0)	3 (1.2)	2 (0.8)	2.97 (0.2)
2	You are satisfied health personnel always explain about the required instruction for you.	238 (93.7)	7 (2.8)	9 (3.5)	2.90 (0.4)
3	You are dissatisfied health personnel, they are not skillful for treatment.	87 (34.3)	57 (22.4)	110 (43.3)	1.91 (0.8)
4	You are satisfied health center location to be convenience.	234 (92.1)	8 (3.1)	12 (4.7)	2.87 (0.4)
5	You are satisfied about the fast services from health personnel.	224 (88.2)	25 (9.8)	5 (2.0)	2.86 (0.3)
6	You are satisfied health personnel are always active and helpful to you.	219 (86.2)	33 (13.0)	2 (0.8)	2.85 (0.3)
7	You are satisfied about cost of treatment and drug at health center.	238 (93.7)	14 (5.5)	2 (0.8)	2.93 (0.2)
8	You are satisfied the quality of treatment at health center is good enough for you.	227 (89.4)	25 (9.8)	2 (0.8)	2.89 (0.3)
9	You are satisfied after getting treatment at health center is good enough for you.	192 (75.6)	53 (20.9)	9 (3.5)	2.72 (0.5)
10	You are satisfied about the willingness of health personnel to serve you.	239 (94.1)	8 (3.1)	7 (2.8)	2.91 (0.3)
11	You are satisfied about the treatment at private clinic/hospital more than health center.	121 (47.6)	69 (27.2)	64 (25.2)	2.22 (0.8)
12	You are satisfied to talk about your health problem with health personnel.	241 (94.9)	10 (3.9)	3 (1.2)	2.94 (0.2)
13	You are satisfied about the cleanness of health center.	242 (95.3)	9 (3.5)	3 (1.2)	2.94 (0.2)
14	You are dissatisfied health personnel, they are not always friendly with you.	146 (57.5)	16 (6.3)	92 (36.2)	2.21 (0.9)
15	You are dissatisfied health personnel behave or talk impolitely with you.	120 (47.2)	39 (15.4)	95 (37.4)	2.10 (0.9)
16	You are dissatisfied about quality of drug equipment at health center.	85 (33.5)	95 (37.4)	74 (29.1)	2.04 (0.7)
17	You are dissatisfied health personnel can not clearly answer or explain about your health problems.	96 (37.8)	37 (14.6)	121 (47.6)	1.90 (0.9)
18	You are dissatisfied about long queue and many people at health center.	134 (52.8)	43 (16.9)	77 (30.3)	2.22 (0.8)

4.5 Utilization of health center service.

Table 11 shows the frequency of using health center service of respondents in past 6 months. It found that more than haft of respondent 67.7 percent who live near health center had ever used any kind of services. While who ever used one time 24.8 percent, two times 24.4 percent, three times 11.4 percent and more than three times 7.1 percent. However, the percent of respondent who never used health center service within 6 months were 32.2 percent at health center in that rural area.

Table 11 Number and percentage of respondents classified by frequency of using health center service in 6 months.

Frequency of using health center service in 6 months	**Number N = 254**	**Percent**
Never used	**82**	**32.3**
Ever used	**172**	**67.7**
1 time	63	24.8
2 times	62	24.4
3 times	29	11.4
more than 3 times	18	7.1

4.6 Reasons for not using health center service.

The data in table 12 shows the proportion of reason for not using health center service. Among 82 villagers who did not use health center service, the number of reporting of the common reasons was other reason 36.6 percent (including 28 villagers were healthy, 1 villager was self treatment and 1 villager bought drug from drug store), it is related to inconvenience. 30.5 percent stated that there was inconvenient to go to health center, did not trust treatment from health personnel 18.3 percent at their health center service and 14.6 percent gave a reason that their

neighbors suggest them to go to other health services in Khonkaen Disstrict, including private clinic and private hospital outside Khonkaen District .

Table 12 Number and percentage of respondents classified by reasons for not used health center service.

Reasons for not used health center	**Number N = 82**	**Percent**
1.Did not trust treatment from health personnel	15	18.3
2.It is inconvenient to go to health center	25	30.5
3. Neighbors suggest you to go to other health service	12	14.6
4. Other	30	36.6

4.7 Activities of health center service.

Table 13 shows the type of services that the respondents received from health center. The large proportion of respondents 31.1 percent went to health center because their mild/simple illness. And 19.3 percent received the service from health center because they went a “first aid”. Another 18.1 percent came to health center as due to Ante-Natal Care/Post-Natal Care (ANC/PNC). Only, 1.2 percent was health education service at their health center.

Table 13 Number and percentage of respondents classified by activities of health center service.

Activities of health center	Number N = 254	Percent
1. emergency	11	4.3
2. any kind of disease can be treated	28	11.0
3. mild / simple illness	79	31.1
4. first aid	49	19.3
5. immunization	12	4.7
6. family planning	9	3.6
7. ANC / PNC	46	18.1
8. delivery	17	6.7
9. health education	3	1.2

4.8 Last using health center service.

Table 14 shows the frequency of last using health center service of respondents. Many respondents 46.1 percent used the services of health center 12-23 months ago. And those using health center 1 month – 11 months are relative the same proportion, with 22.4 and 21.3, respect only.

Table 14 Number and percentage of respondents classified by last using health center service

Frequency of last using health center	Number N = 254	Percent
Last using		
1 month	57	22.4
1-11 months	54	21.3
12-23 months	117	46.1
24 months +	26	10.2

4.9 Simple treatment / illness.

Table 15 shows the pattern of simple treatment when the respondents had an illness. This came from the **first method for treatment**, when you got sick, what is the first method for treatment of respondent. It was found that 72.4 percent of the villagers went to health center service first when they had the illness. 11.8 percent bought drug from drug store and 11.4 percent treated them self. The question continue to ask "**If that symptom still remains**, what you would do" the 45.4 percent of respondent went to health center service and 43.8 percent went to hospital. **And if that symptom is not better**, what would you do next" it is interesting that a majority of respondents indicated they go to hospital 62 percent. Only 19.2 percent of respondents went to health center service.

Table 15 Number and percentage of respondents classified by simple treatment of villagers

Statement	Simple treatment / illness		
	First method for treatment N (%)	**If that symptom still remains* N (%)**	**If that symptom is not better** N (%)**
self treatment	29(11.4)	2(0.8)	2(0.8)
buy drug from drug store	30(11.8)	8(3.2)	-
go to private clinic	3(1.3)	15(6.0)	30(12.2)
go to health center	184(72.4)	114(45.4)	47(19.2)
go to hospital	8(3.1)	110(43.8)	152(62.0)
traditional healer treatment	-	1(0.4)	8(3.3)
Other	-	1(0.4)	6(2.5)

Note: * Missing /no answer 3 cases.
**** Missing/no answer 9 cases.**

4.10 Acute illness

Table 16 shows the pattern of health utilization in case of acute illness. As the question state "When you or your family got severe health problem, what is **the first method for treatment** of respondent 34.3 percent the villagers went to health center service first and 11.4 percent did self treatment. **If that symptom still remains** what you would do" a majority f of respondents 69.7 percent went to hospital and only 16.4 percent went to health center service. The question continues to ask "**If that symptom is not better**, what you would do next?" more than half of respondents 63.6 percent went to hospital and 20.5 percent of respondents went to private clinic.

Table 16 Number and percentage of respondents classified by acute illness of villagers.

Statement	Acute illness		
	First method for treatment N (%)	**If that symptom still remains* N (%)**	**If that symptom is not better** N (%)**
self treatment	29(11.4)	1(0.9)	13(8.6)
buy drug from drug store	8(3.2)	1(0.8)	1(0.7)
go to private clinic	1(0.4)	17(11.3)	31(20.5)
go to health center	87(34.3)	25(16.4)	2(1.3)
go to hospital	25(9.8)	106(69.7)	96(63.6)
traditional healer treatment	-	2(0.9)	3(2.0)
Other	104(40.9)	-	5(3.3)

Note: * Missing/no answer 102 cases

**** Missing/ no answer 103 cases**

Part II: Factors associating with utilization of health center service.

In this part, the aspects of socio-demographic factors, attitude, accessibility factors, and satisfaction are now examined to relate with utilization of health center service. Presented here is the association between utilization of health center service and socio-demographic factors, attitude, accessibility factors and satisfaction will a statistical method of Chi-square test.

4.11 Association between socio-demographic characteristic factors and utilization of health center service.

Table 17 shows the association between socio-demographic characteristic factors and utilization of health center service. There is no association between health care utilization and socio-demographic factors (age group, sex, education, main occupation and income).

Table 17 Association between socio-demographic characteristic factors and utilization of health center service

Characteristic	Use health center N = 82	Not use health center N = 172	χ^2 (df)	p-value
Age: (age group)			0.043	0.835
20-49 years	45(32.8)	92(67.2)	(1)	
50 + years	37(31.6)	80(68.4)		
Sex			2.205	0.138
Male	33(38.4)	53(61.6)	(1)	
Female	49(29.2)	119(70.8)		
Education*			1.183	0.277
primary school	76(33.6)	150(66.4)	(1)	
high school and higher	6(23.1)	20(76.9)		
Main occupation			0.870	0.351
agriculture	76(33.2)	153(66.8)	(1)	
non agriculture	6(24.0)	19(76.0)		
Income			1.097	0.578
sufficient and have savings	17(37.8)	28(62.2)	(2)	
sufficient and no savings	42(29.8)	99(70.2)		
not sufficient	23(33.8)	45(66.2)		

Note: * education, not use health center column are missing 2 cases.

4.12 Association between attitude toward health center and utilization of health center service.

Table 18 shows the association between attitude toward health center and utilization of health center. This association is significantly found at p-value = 0.000. In other words, villagers with low attitude toward health center are more likely to not use health center service and those with high attitude tend to use health center.

Table 18 Association between attitude toward health center and utilization of health center service

Attitude toward health center	Use health center N = 82	Not use health center N = 172	χ^2 (df)	p-value
Attitude level			20.389	0.000*
Low attitude	61(44.5)	76(55.5)	(1)	
High attitude	21(17.9)	96(82.1)		

Note: * Significant at p-value < 0.05

4.13 Association between accessibility of health center and utilization of health center service.

Table 19 shows the association between accessibility of health center and utilization of health center service. It found that distance factor is significantly associated with utilization of health center service (p-value = 0.001). For service cost is not significantly associated with utilization of health center service.

Table 19 Association between accessibility of health center and utilization of health center service.

Accessibility of health center	Use health center N = 82	Not use health center N = 172	χ^2 (df)	p-value
Distance			11.152	0.001*
≤ 2 Km.	26(21.8)	93(78.2)	(1)	
2 + Km.	56(41.5)	79(58.5)		
Service cost			1.186	0.276**
Expensive	4(50.0)	4(50.0)	(1)	
not expensive	78(31.7)	168(68.3)		

Note: * significant at p-value < 0.05

**** Fisher's Exact Test.**

4.14 Association between satisfaction with health center and utilization of health center service.

Table 20 shows the association between satisfactions and between utilization of health center service. The satisfaction factor is significantly associated with utilization of health center service (p-value= 0.000).

Table 20 Association between satisfaction with health center and utilization of health center service

Satisfaction with health center	**Use health center N = 82**	**Not use health center N = 172**	**χ^2 (df)**	**p-value**
Satisfaction			23.789	0.000*
Low satisfaction	66(44.3)	83(55.7)	(1)	
High satisfaction	16(15.2)	89(84.8)		

Note: * Significant at p-value < 0.05

CHAPTER 5
DISCUSSION

From the result of this study about utilization of health center service among the villagers in rural area of Sawathi Sub-District, Khonkaen District, Khonkaen Province is collected and analyzed. There are various possible factors could related to the health center, but some factors could not related to the utilization. According to the conceptual framework, there are 3 factors comprised of predisposing factor (socio-demographic characteristics, attitude toward health center), enabling factors (accessibility of health center) and reinforcing factors (satisfaction with health center). Health center is one kind of basic health service which provided the essential health services by the government for the villagers in the rural area. For 3 factors of independent variable that may be relevant to the utilization of health center service among the villagers in rural areas in Sawathi Sub-District. The results from this study are discussed in following section.

The study area, study population and sample size are select based on the research objectives. Six villages in the catchments area of health center and the number of respondents from each village calculate according to the proportion of the total population. 254 villagers are selected to be sample of this study. The villagers is selected to be respondent in case of the male and female was not available; the interviewer would ask the other people in that household who could answer the question that one should be 20 to more than 60 years old in the rural area.

Before going to interview the respondents, all the interviewers are trained to clearly and correctly understand the questionnaire in order to complete all questions. They also had to practice to ask the questions and emphasized on the questions before going to interview the villagers, which made the respondents confused. The collected data are enter and analyzed in computer by SPSS programs. The results of the study are dividing into 2 parts, 1) Descriptive part described all the variables by describing

frequency, percentage, mean, SD of the utilization factors. 2) Analytic part presented by Chi-square and p-value to show the relationship between socio-demographic characteristics, attitudes toward health center, accessibility of health center and satisfaction with health center and utilization of health center service.

5.1 Utilization of health center service and socio-demographic characteristics

The socio-demographic characteristics of respondents, the result showed that age groups, the distribution of respondent is different in each group age group, 8.3 percent in age group of 20-29 years, 18.1 percent in age group of 30-39 years, 27.6 percent in age group of 40-49 years, 29.1 percent in age group of 50-59 years, 16.9 percent in age group of >60 years. Although the number of the respondents' utilization of health center service in each age group is different in this study but the older age group tend to utilization of health center service more than younger age group. As expected, the family size in average is 4.6 persons and a large proportion of family with 4-5 persons is 52.0 percent. The respondents mostly are wife/husband of household head 48.0 percent.

Most of respondents are female 66.1 percent, that female are more likely to utilization of health center service than male. Women also make contacts with health personnel in health center than do men. Many are married 84.9 percent that married respondents are more likely to visit health center service than are single or widowed/divorced/separated respondents.

The large proportions of respondents have 2-3 children 52.8 percent that mean small family, if they have many children; they will expenditure very high in their family and also they want to save money they like to visit health center because not expensive for them. The education level of respondents was primary school level 89.7 percent are high likely to visit health center than the high school and higher education level. The main occupation of respondents 90.2 percent is agriculture because almost that area 90 percent is agriculture and they are very poor if comparing with other occupation and also they get sick more than other occupation in that area, they like to

visit health center service. The respondents mostly have their own house 93.3 percent. The respondents' income is sufficient and no savings for family expenses 55.5 percent and economic status is moderate 94.9 percent. In this part, for age group, sex, marital status, Status in your family, family size, children number, education, main occupation and type of residence ownership are found no significantly relationships with utilization of health center service.

5.2 Utilization of health center service and attitudes towards health center

The attitude of respondent towards health center, we have 5 answers for each question in this part, we give score according to the degree of attitude (5 = strongly agree, 4 = agree, 3 = don't know/not sure, 2 = disagree and 1 = strongly disagree) for 10 positive question and 8 negative questions, we convert the score (5 = strongly disagree, 4 = disagree, 3 = don't know/not sure, 2 = agree and 1 = strongly agree). We summed all questions to be score. The minimum point is 37 and maximum point is 80. We use mean score = 60.2 to classify the respondents' answer to two groups. There are low attitude 63.9 percent and high attitude 46.1 percent. The attitude in this study is significantly relationship with utilization of health center service.

Attitude scales are relating crude measuring instruments and we must not expect too much from the. Their chief function is to divide people roughly a number of broad groups, with regard to a particular attitude. Such scales cannot be themselves been expected to provide us with subtle insight in an individual case. They are technical in placing people in a continued relation to one another and absolutely impossible to say which method is the best. Each has imported desirable features but each of them is also open to criticism. If we wish to say attitude patterning or explore theories of attitudes then probably the likert procedure will be the most relevant.

Likert's primary concern was un dimensionality making sure that all the items would measure the same thing. He also wanted to eliminate the need for judges by getting subjects in a trial sample to place themselves an attitude continuum for each statement running from "strongly agree, agree, uncertain, disagree and strongly

disagree". These five positive were given simple weights of 5, 4, 3, 2, and 1 for scoring purposes after more complex scoring methods had been showed to possess no advantages.

To produce a likert scale we proceed as follows; first as usual we compose an item pool. However for the Lifetree procedure it is the best not to be had neither many neutral items nor many extremes at either end of the continuum. Next we score the record of each respondent. To do this we must decide whether we want a high scale score to mean a favorable or unfavorable attitude. If does not matter what we decide but from then on we must be consistent.

If we decide that a high score on the scale will mean a favorable attitude, and then favorable statement must be score 5 for "strongly agree" down to 1 for "strongly disagree" and unfavorable statement must be scored 1 for "Strongly agree" up to 5 for "strongly disagree". If we decide that high score will mean an unfavorable attitude then the opposite system of scoring will apply (26).

High attitude towards health center was directly related to high utilization of health center service. The families having low knowledge about health center service had low utilization of services. The reason might be that high knowledge families in relation to health center knew about activities of health center service and they used these services whenever they need. Utilization of health care services will not occur if the person has no knowledge about the availability of possible health care alternatives (10).

Attitude usually depends on level of knowledge. The positive attitude towards health center means they had faith with health center activities. Once people have faith with any health services, they trend to use it. Responsible organization has to organize health education program in rural area to solve the problem of low utilization of health center services.

5.3 Utilization of health center service and accessibility of health center

The accessibility of health center, the result showed that the average distance between health center and respondent living place. 39 percent respondents lived within the distance of 2-3 km and the majority of them 87.8 percent went to health center by using their own car/motorcycle and bicycle. The average traveling time of respondents was 6-15 minutes 44.5 percent and most of the respondents 83.1 percent felt it convenient to reach the health center. About half 53.8 percent of the respondents had to pay 21-50 baht for each visit and 84.4 percent villagers considered this cost as an appropriate amount. The 67.7 percent of them realized that the cost of service in health center was not expensive. According to the cost of treatment categorized in this study (30 Baht) which is the same cost as the people have to pay based on the new health insurance in Thailand (the universal coverage scheme). 75.2 percent villagers were satisfied with the service time and 96.3 percent were satisfied with the service schedule. In this part, there is significantly relationship between distance factors (p-value = 0.001) with utilization of health center service. But, the transportation, traveling time, convenience, transportation problem, traveling cost, suitable cost, cost of service in health center, service time service schedule are not significantly with utilization of health center service.

5.4 Utilization of health center service and satisfaction with health center

The satisfaction with health center of respondents, we give three choices for each question in this part. We give the score according to the degree of satisfaction (3 = satisfied, 2 = not sure, 1 = dissatisfied) for 6 negative questions and converted the score (1 = satisfied, 2 = not sure, 3 = dissatisfied) for 6 positive questions. After calculating, the result showed that the minimum point is 36and maximum point is 54. We use mean score = 45.0 to classify the respondent' answer to groups. There are dissatisfied 58.7 percent and satisfied 41.3 percent. The chi-square test showed that there is significantly relationship (p-value = 0.000) between satisfaction with health center and utilization of health center service.

The other important trigger for high utilization of health center is the level of satisfaction on quality of service and convenience of service. In this study data revealed that 78 percent family who had high satisfaction on quality of health center services were in the high health center utilization group. Whereas 52 percent of low utilized health center services family had low satisfaction. However the weakness of health center seem to be inadequate or low potential for curative care which causes inconvenience to the villages and thus low utilization (28).

For the simple treatment, when the respondents have an illness. The result showed that the first method for treatment in this area 72.4 percent of the villagers go to health center service, 11.8 percent bought drug from drug store and 11.4 percent treated them self. If that symptom still remains 45.4 percent of respondent go to health center service and 43.8 percent go to hospital. If that symptom is not better, it is interesting that a majority of respondents indicated they go to hospital 62 percent. Only 19.2 percent of respondents go to health center service.

The pattern of health utilization incase of acute illness, when the respondent and their family get severe health problem, the first method for treatment of respondent 34.3 percent the villagers go to health center service first and 11.4 percent do self treatment. For that symptom still remains, a majority f of respondents 69.7 percent go to hospital and only 16.4 percent go to health center service. If that symptom is not better, more than half of respondents 63.6 percent go to hospital and 20.5 percent of respondents go to private clinic.

The frequency use health center service of respondents in 6 months. It found that more than haft of respondent 67.7 percent who live near health center had ever used any kind of services. Wile who ever used one time 24.8 percent, two times 24.4 percent, three times 11.4 percent and more than three times 7.1 percent, this may be convenience for respondents to access and the cost of the treatment for the public sector in Thailand is not expensive. Up to now most of the people are conversed with universal coverage and 30 Baht health care scheme. However, the percent of

respondent who never used health center service within 6 months are 32.2 percent at health center in that rural area.

Most of the people actually preferred to be treated at the bigger hospitals rather than the nearest small or health center even for common diseases in 1992, Virochsaengaroon. One study done in Indonesia by Chernichovsky and Maesook, 1986 found that rich people were more likely to have been treated by physician, possibly at their home, whereas public health facilities were most heavily visited by the middle income group especially in rural areas (29).

The proportion of reason for not used health center service. Among 82 villagers who did not use health center service, the number of reporting of the common reasons is other reason 36.6 percent (including 28 villagers are healthy, 1 villager is self treatment and 1 villager bought drug from drug store), it is related to inconvenience. 30.5 percent stated that there is inconvenient to go to health center, do not trust treatment from health personnel 18.3 percent at their health center service and 14.8 percent give a reason that their neighbors suggest them to go to other health services in Khonkaen District, including private clinic and private hospital outside Khonkaen District.

One of the reason people refrain from health center could be due to their diverse expectations from the health center. The perception among the community is that health center should provide services in supermarket approach, that is, goods are available under umbrella. The needs that patients express to increase the acceptability of health center services may not always be feasible, but with little more efforts, some requirements mat be addressed (23).

The reason for not visiting health center at this point can be concluded that there were five possible reasons to explain why they did not use health center services. Firstly could be lack of sufficient knowledge and awareness about health center services, Secondly could be the dissatisfaction with the quality of care after receiving health care from health center, with less adequacy of medicine and medical

equipment of health center. Thirdly could be the traditional healer in the village level practicing long period and they have a good relationship with traditional healer and they get treatment from traditional healer. Fourth could be their culture, education, religion and belief for not using health center services. Fifth after having the correct diagnosis from health personnel, the patients can do self-treatment; on the other hand it is the good health status of these people (30).

The respondents know about type of services that the respondents received from health center. The large proportion of respondents 31.1 percent go to health center because their mild/simple illness. And 19.3 percent received the service from health center because they go a “first aid”. Another 18.1 percent come to health center as due to Ante-Natal Care/Post-Natal Care (ANC/PNC). Only, 1.2 percent is health education service at their health center, which they could receive from their health center. Most of them through about mid/simple illness and first aid but only some of them know that they could receive the delivery service at the health center.

Concerning the location of health center, traveling cost to visit health center and accessibility the study do not find any relation between these factors and utilization of health center. This could be because patients are satisfied with the place of health center; they do not care about the cost and distance, waiting time. Their perception is emphasized only on the attitude of health personnel and their capacity of providing health services. Thus, providing continuing training to health personnel is impotents to be encouraged.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study is carried out in Sawathi Sub-District, Khonkaen District, Khonkaen Province northern-east region of Thailand with the aim to investigate the important factors in relation to utilization of health center service. There are six villages under catchments area of this health center and 254 villagers are purposively selected. Data are collected by training interviewers with constructed questionnaire. The questionnaire mainly comprised of the following parts: socio-demographic characteristic, attitudes towards health center, accessibility of health center and satisfaction with health center and utilization of health center service.

In this study, statistical tests showed the relationship between utilization of health center service and socio-demographic characteristics, attitudes towards health center, accessibility of health center and satisfaction with health center.

From the result it is found that almost villagers are females, with the mean age of 47 years. Majority of them are married 84.9 percent, and more than half completed their primary education. Almost those females belonged to agriculture group professionally. The income is sufficient and no saving 55.5 percent and they live within area of about 2.1-3 kilometers from the health center. The traveling time to health center from their residence is 6-15 minutes.

1. There are many other health services such as private clinic, drug store and government hospital in or near their villages. It is very easy for them to go and use those health services. These kinds of facility are the alternative selection for the villagers to consider using when they have health problem or get sick/accident.

2. Mores than haft of respondent 67.7 percent who live near health center had ever used any kind of services. Wile who ever used one time 24.8 percent, two times 24.4 percent, three times 11.4 percent and more than three times 7.1 percent. However, the percent of respondent who never used health center service within 6 months were 32.2 percent at health center in that rural area.

3. The economic status of the villagers 94.9 percent most of them are moderates status. It can indicate that they can afford for their illness at the private clinic or hospital.

4. The main reasons for not using their health center in this study found that among 82 villagers who did not use health center service, the number of reporting of the common reasons was other reason 36.6 percent (including 28 villagers were healthy, 1 villager was self treatment and 1 villager bought drug from drug store), it is related to inconvenience. 30.5 percent stated that there was inconvenient to go to health center, did not trust treatment from health personnel 18.3 percent at their health center service and 14.6 percent gave a reason that their neighbors suggest them to went to other health services in Khonkaen Disstrict, including private clinic and private hospital outside Khonkaen District .

5. Health center is first choice for the villagers in this area to go and use provided services, although they got the simple illness. If that symptom is not better they like to go to hospital. For acute illness, the first villager chose health center, if that symptom is not better they like to go to government hospital.

In this study statistic showed that the utilization of health center service is significant relationship with attitudes towards health center services and some factor such as age group, sex, education, occupation, family income in socio-demographic characteristics is not significant.

For accessibility of health center distance is significant relationship with utilization of health center service, but transportation, traveling cost, convenience,

transportation problem, cost of service in health center, service time and service schedule are not significant relationship between utilization of health center service.

Further analysis, it is found that the health center is highly utilized by family high knowledge and positive attitude toward health center services. This result suggests that the responsible organization should improve their strategies toward health education programs to increase the utilization of health center service in the rural area.

The level of satisfaction with quality of services and convenience of service are noted as another important stimulus to increase the level of utilization of health center. It is found that higher that satisfaction with quality and convenience to health center services. So quality of services in health center should be increased and management of health center should be modified for more convenient of service for villagers.

6.2 Recommendation

From the result of this study, there are some recommendations for implementation for high utilization of health center service. These might be some benefit for the people in the rural area and also recommend for the further study.

6.2.1 Recommendation for Implementation

1. The people do not know about opening time of health center, type of services that they can receive from their health center. So to increase the utilization of health center service, the involved organizations should be organized to inform and motivate the villagers to utilize of health center service. Village health volunteers should persuade the people to utilize of health center service.

2. The majority of utilization of health center service group is farmer. They are not fee at the day time but health center are only open during this period. They cannot

use the provided services at their health center, so the health center should be changed their services hour to suit the communities and open for 24 hours in case of emergency.

3. For the findings, satisfaction with health center services is important factor to persuade the people to utilize health center. It could also attract the high economic and high educated classes of community, which are not utilized it property. So the type of services, drugs and adequate number of qualified manpower should be improved in the health center to compete with growing private health facilities and satisfy people with the good services. If the people are not satisfied with health center, although they stayed near by the health center, when they got sick or had health problem, they would not use the provided services at their health center.

4. The study showed that most of the villagers are agriculture and working rice field, therefore they usually do not have time to wait for along time, at the registration room .In finding when they wait to check-up the diabetic. It is therefore recommended that during rush hour number of the registration , staff may kindly be increased so that villagers should not have bad feeling of losing their precious time.

5. Health personnel should make home care visits for villagers living far from health center each month.

6. Attitude toward health center, the villagers are strongly agree, when they went to health center, they had to wait for a long time (15.4%), strong agree with health personnel do not pay attention and listen to them about your health problems (20.1%), they can not trust treatment or diagnosis from health personnel (12.2%) and health center location is not appropriate for their village (41.7%). This should be increase management of health center and improving health personnel.

7. Satisfaction with health center, they are dissatisfied about quality of drug equipment at health center (33.5%), health personnel can not clearly answer or explain about their health problem (37.8%), about long queue and many people at

health center (52.8%), health personnel behavior or always friendly with them (47.2%), and health personnel are not skillful for treatment (34.3%). In term of satisfaction should be motivation the villager's satisfied utilization of health center service.

6.2.1 Recommendation for future study

1. The research should not be specified only attitudes and satisfaction but also practice of people on the use of health center services and the management and supervision system should be included to identify the influencing factors utilization of health center service.

2. The study should be clearly about sample selection before go to collecting data and research instrument.

3. For predisposing factors, in this study ally use attitude toward health center service, in the future need to find the level of knowledge of the villagers with health center service.

4. In enabling factors, in this study was used accessibility of health center, in the future should be study the cover availability of health resources.

5. The utilization in the general people will be useful for the policy planner such as the provincial health office to find the relate factor to improve the utilization of health center service among villagers in rural area.

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APPENDIX

APPENDEX A
INTERVIEW QUESTIONNAIRE

UTILIZATION OF HEALTH CENTER SERVICE AMONG THE VILLAGERS IN RURAL AREAS OF KHONKAEN PROVINCE, THAILAND

This questionnaire is prepared for thesis writing for MPHM course at the ASEAN Institute for Health Development, Mahidol University. Your answer will be kept in secret and not exposed to any other purpose.

Date of interview_____Name of village_____
Village number _____Household number_____
Time of interview_____ Minutes
Name of interview _____

PART 1. Socio-demographic Characteristic Factors

Please put a tick [√] in the appropriate box to mark answer the question (Choose one for each question)

1.1 How old are you? _____ years old (Completed year)

1.2 Sex

☐ male ☐ female

1.3 Marital status

☐ single ☐ married ☐ windowed
☐divorced ☐separated ☐other(specify)_____

1.4 Status in your family

☐ head of household ☐ wife/head of household's spouse

☐ other (specify)

1.5 How many members do you have in your family now? _____ person (s)

1.6 How many children currently living you now? _____person (s)

1.7 What is your education?

☐ no education ☐ primary ☐ secondary/high school

☐ vocation ☐ diploma ☐ bachelor

☐ master ☐ other (specify)_____

1.8 Main Occupation (main income earned from the occupation)

☐ agriculture ☐ laborer ☐ housewife

☐ government employee ☐ private employee ☐ own business

☐ other (specify)_____

1.9 What is your type of residence?

☐ Own house ☐ rental house

☐ Other (specify) _____(e.g. living in parents house)

1.10 Your income is sufficient for family's expense?

☐ sufficient and have savings ☐ sufficient and no savings

☐ not sufficient

1.11 What do you think about your economic status when compare with your neighbors?

☐ rich ☐ moderate ☐ poor

PART 2: Attitude towards health Center Service

Please "√" in the answer which it is appropriate in your opinion
5=strongly agree, 4=.agree, 3=don't know/not sure, 2= disagree,1=strongly disagree

No.	Questions	5	4	3	2	1
2.1	Health center is useful to improve health status of community.					
2.2	Health center is better than drug store or private clinic in term of travel convenience.					
2.3	Health center provides effective medicine than private clinic.					
2.4	Health center charges lower cost of medicine than drug store.					
2.5	Health center must provide free services for all people					
2.6	Health center services hour is not suitable for you.					
2.7	When you go to health center, you have to wait for a long time.					
2.8	Health personnel do not pay attention and listen to you about your health problems.					
2.9	When you go to health center the health personnel are always absent.					
2.10	The quality of drug in drug store or private clinic is better than health center.					
2.11	Health center is clean and has good environment.					
2.12	The health center's medical equipment are modern					
2.13	Health center has drug and medical equipment enough for treatment					

No.	Questions	5	4	3	2	1
2.14	Health personnel always visit your house.					
2.15	You can use the provides at health center all the time					
2.16	You can not trust treatment or diagnosis from health personnel					
2.17	Health center location is not appropriate for your village.					
2.18	Health center can provide only treatment for simple illness and injury.					

PART 3. Accessibility of Health Center

3.1 How far from your house to health center?

☐ <1 km. ☐ 1-2 km.

☐ 21-3 km. ☐ >3 km.

3.2 How do you go to health center?

☐ Walking ☐ your own vehicle

☐ Public car ☐ other (specify) _____

3.3 How much time you spent for traveling? (specify) _____

3.4 From the answer of question 3. 3, is it convenient for you?

☐ yes ☐ no

3.5 Do you think that going to the health center and coming back to your house, is very difficult and makes you have many problems?

☐ yes ☐ no

3.6 How must do you pay for transportation go to health center and come back to your house per 1 visit?

☐<20 baht ☐21-50 baht ☐ not applicable

☐>51-100 baht ☐>100 baht (specify) _____

3.7 From the answer of question 3.6, this cost is suitable for you?

☐ appropriate ☐not appropriate ☐ not applicable

3.8 How do you think about the cost of service in your health center?

☐ expensive ☐ reasonable ☐ not expensive

3.9 Do you know the services schedule at health center?

☐ yes, specify: Open time and close time_____

☐ no

3.10 If yes, what do you think about the time table?

☐ appropriate ☐ not appropriate

PART 4. Satisfaction with Health Center services

Please "√" in the answer which it is appropriate in your opinion.

3= satisfied, 2= not sure, 1=dissatisfied

No.	Questions	3	2	1
4.1	You are satisfied from getting good services at health center.			
4.2	You are satisfied health personnel always explain about the require instruction for you			
4.3	You are dissatisfied health personnel, they are not skillful for treatment			
4.4	You are health center location is convenient for you			
4.5	You are satisfied about the fast services from health personnel.			

No.	Questions	3	2	1
4.6	You are satisfied health personnel are always active and helpful to you.			
4.7	You are satisfied about cost of treatment and drug at health center.			
4.8	You are satisfied the quality of treatment at health center is good enough for you.			
4.9	You are satisfied after getting treatment at health center is good enough for you.			
4.10	You are satisfied about the willingness of health personnel to serve you.			
4.11	You are satisfied about the treatment at private clinic/hospital more than health center.			
4.12	You are satisfied to talk about your health problem with health personnel.			
4.13	You are satisfied about the cleanness of health center.			
4.14	You are dissatisfied health personnel, they are not always friendly with you.			
4.15	You are dissatisfied health personnel behavior and talk impolitely with you			
4.16	You are dissatisfied about quality of drug and equipment at health center.			
4.17	You are dissatisfied health personnel can not clearly answer or explain about your health problems.			
4.18	You are dissatisfied about long queue and many people at health center.			

PART 5. Utilization of Health Center Service

5.1 When did you last use the services of the health center?

_____ month, year ago.

5.2 What was that your sickness or health problem, when your last visit to health center?

☐ headache ☐ common cold ☐ had fever

☐ diarrhea ☐ stomachache ☐ got accident

☐ other (specify)_____

5.3 What is the first method for treatment /first palace for your sickness to health problem mention in question No.5.2?

☐ self treatment ☐ buy drug from drug store

☐ go to private clinic ☐ go to health center

☐ go to hospital ☐ traditional healer treatment

☐ other (specify) _____

5.4 If that symptom (from question No 5.2) still remains or you are dissatisfied about treatment, what would you do next?

☐ self treatment ☐ buy drug from drug store

☐ go to private clinic ☐ go to health center

☐ go to hospital ☐ traditional healer treatment

☐ other (specify) _____ ☐ not applicable

5.5 If that symptom (from question No 5.2) is not better, what would you do next?

☐ self treatment ☐ buy drug from drug store

☐ go to private clinic ☐ go to health center

☐ go to hospital ☐ traditional healer treatment

☐ other (specify) _____ ☐ not applicable

5.6 When you or your family members get severe health problem; e.g. blood in the urine/vomit, ulceration of the arms or legs, what is the first method treatment?

- ☐ self treatment
- ☐ buy drug from drug store
- ☐ go to private clinic
- ☐ go to health center
- ☐ go to hospital
- ☐ traditional healer treatment
- ☐ other (specify) _____

5.7 If that symptom (from question No.5.6) still remains or you are not satisfied about treatment, what would you do?

- ☐ self treatment
- ☐ buy drug from drug store
- ☐ go to private clinic
- ☐ go to health center
- ☐ go to hospital
- ☐ traditional healer treatment
- ☐ other (specify) _____
- ☐ not applicable

5.8 If that symptom (from question No 5.6) is not better, what would you do next?

- ☐ self treatment
- ☐ buy drug from drug store
- ☐ go to private clinic
- ☐ go to health center
- ☐ go to hospital
- ☐ traditional healer treatment
- ☐ other (specify) _____
- ☐ not applicable

5.9 Did you or your family members get sick or accident within last 6 months?

- ☐ no
- ☐ yes , how many time ?_____ times
  how many people? _____people

5.10 In the last 6 month, How often do you or your family members select health center for treatment?

- ☐ never use
- ☐ ever use one time (go to 5.12)
- ☐ ever use two times (go to 5.12)
- ☐ ever use three times (go to 5.12)
- ☐ ever use more than three times (specify)_____(go to 5.12)

5.11 If you choose never use from question No.5.10, why?

- ☐ don't trust treatment from health personnel
- ☐ it is inconvenient to go to health center
- ☐ your relatives or neighbors suggest you to go to other health services
- ☐ other (specify)_____

5.12 What kind of health services that the people could go to seek from health center? (can answer more than 1)

- ☐ in case of emergency for first aid before referring to the hospital
- ☐ any kind of disease can be treated at health center
- ☐ mid/simple illness (e.g. common cold, diarrhea)
- ☐ first aid
- ☐ immunization
- ☐ family planning
- ☐ ANC/PNC
- ☐ delivery
- ☐ health education
- ☐ other (specify)_____

5.13 Do you have suggestion for improving health center service?

Thank you for your answers and cooperation.

APPENDIX B
PRE-TEST

Reliability analysis – scare (alpha)

Reliability analysis for judging respondent's attitude (questionnaire part 2)

Table B1 Item analysis

Question	Mean	Std Dev	Cases
A1	3.9667	1.0334	30
A2	3.3000	1.2635	30
A3	3.1000	1.1552	30
A4	2.2000	1.1567	30
A5	2.7333	1.3629	30
A6	3.0333	1.2994	30
A7	3.4667	1.2521	30
A8	3.0333	1.4735	30
A9	2.3667	1.2726	30
A10	3.9333	.8683	30
A11	3.0000	1.0505	30
A12	2.8333	1.2341	30
A13	2.6000	1.2484	30
A14	3.2667	1.2847	30
A15	3.1000	1.3222	30
A16	2.8000	1.4948	30
A17	2.2667	1.2299	30

Statistics for scale: mean = 51.0000, variance = 110.3448, Std Dev = 10.5045, Number of variables = 17

Reliability analysis – scare (alpha)

Table B2 Item total statistics (Respondent's Attitude)

Question	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
A1	47.0333	98.9299	.5034	.7943
A2	47.7000	100.8379	.3117	.8051
A3	47.9000	97.4034	.5090	.7930
A4	48.000	102.7862	.2625	.8073
A5	48.2667	97.7885	.3969	.7998
A6	47.9667	101.2057	.2850	.8070
A7	47.5333	101.8437	.2743	.8074
A8	47.9667	100.1713	.2713	.8095
A9	48.6333	93.4126	.6225	.7845
A10	47.0667	101.1678	.4822	.7970
A11	48.0000	99.0345	.4882	.7950
A12	48.1667	98.4885	.4219	.7980
A13	48.4000	99.9724	.3530	.8024
A14	47.7333	95.8575	.5103	.7921
A15	47.9000	97.8172	.4121	.7986
A16	48.2000	99.9586	.2727	.8096
A17	48.7333	94.8230	.5849	.7875

Reliability Coefficients: Number of cases = 30, Number of items = 17

Alpha = 0.8090

APPENDIX C
PRE-TEST

Reliability analysis – scare (alpha)

Reliability analysis for judging respondent' satisfaction (questionnaire part 4)

Table C1 Item analysis

Question	Mean	Std Dev	Cases
S1	2.5000	.6823	30
S2	2.3000	.7944	30
S3	1.9667	.5561	30
S4	2.0000	.8710	30
S5	2.0333	.8503	30
S6	2.7667	.5040	30
S7	2.3667	.8087	30
S8	2.5000	.7768	30
S9	2.7333	.5208	30
S10	2.2667	.7849	30
S11	2.5667	.6261	30
S12	1.2667	.5208	30
S13	2.2333	.8584	30
S14	2.7333	.5833	30
S15	2.6667	.5467	30

Statistics for scale: mean = 34.9000, variance = 26.4379, Std Dev = 5.1418, Number of variables = 15

Reliability analysis – scare (alpha)

Table C2 Item total statistics (Respondent' satisfaction)

Question	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
S1	32.4000	21.9724	.6254	.7407
S2	32.6000	21.0759	.6486	.7349
S3	32.9333	25.8575	.0480	.7547
S4	32.9000	22.3000	.4108	.7598
S5	32.8667	21.7747	.4965	.7504
S6	32.1333	26.3264	-.0276	.7877
S7	32.5333	22.1195	.4817	.7521
S8	32.4000	21.0069	.6780	.7323
S9	32.1667	24.0057	.4234	.7605
S10	32.6333	24.5161	.1680	.7822
S11	32.3333	21.9540	.6975	.7368
S12	33.6333	26.0333	.0251	.7851
S13	32.6667	24.5747	.1324	.7882
S14	32.1667	23.6609	.4294	.7590
S15	32.2333	23.8402	.4306	.7595

Reliability Coefficients: Number of cases = 30, Number of items = 15

Alpha = 0.7746

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