TB PREVENTIVE BEHAVIOR OF PATIENTS CONSULTING AT THE GENERAL OUT-PATIENT DEPARTMENT AT PAHOLPOLPAYUHASANA HOSPITAL, KANCHANABURI PROVINCE, THAILAND

IN SOKHANYA

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ABSTRACT

This study was descriptive research examining TB preventive behaviors among OPD patients in Paholpolpayuhasana hospital, Kanchanaburi province, Thailand. Socio-demographic and economic factors, TB knowledge, perception on TB, and accessibility to TB information were all investigated. Data were obtained from 225 OPD patients by self-administered questionnaire. All OPD patients aged from 15 and above with inclusion criteria were included in the study.

The results showed that overall preventive behaviors of OPD patients were at a good level of 25.78%. There were significant associations between education, occupation, TB knowledge, perception on tuberculosis, and accessibility to TB information with TB preventive behavior. There were also significantly associated links between TB preventive behavior and two groups of significant persons who provide TB information to the OPD patients, public health officers and friends. This demonstrates that public health officers are still the main source for providing effective TB information. There was no association between VHVs (Village Health Volunteers), who are the community activists in primary health care, and TB preventive behavior.

Even though there were strong associations between knowledge, perception, and accessibility to TB information, accessibility to TB information was still low (54.67%). Therefore, it is recommended that to improve the TB preventive behavior, we need to improve accessibility to TB information which could lead to an increase in the level of knowledge on tuberculosis. The hospital should provide information through brochures or posters, or educate the patients to be more aware of TB using appropriate mass media. Capacity building through development of VHVs should strengthen knowledge on TB and help them be involved in TB control.

KEY WORDS: TB PREVENTIVE BEHAVIOR / TUBERCULOSIS / OUT-PATIENT DEPARTMENT PATIENTS.

94 pp.

CONTENTS

Page

CONTENTS (Cont.)

Page

LIST OF TABLES

TABLE Page

LIST OF TABLES (Cont.)

TABLE Page

LIST OF FIGURES

FIGURE Page

LIST OF ABBRIVIATIONS

AIDS	:	Acquired Immuno-Deficiency Syndrome
HBM	:	Health Belief Model
EP	:	Extra-pulmonary
HIV	:	Human Immuno-deficiency Virus
MDR-TB	:	Multi-drug resistant tuberculosis
S (+)	:	Smear-positive
S (-)	:	Smear-negative
TAD	:	Treatment after Defaulter
TAF	:	Treatment after Failure
TB	:	Tuberculosis
TO	:	Transfer out
VHV	:	Village Health Volunteer
WHO	:	World Health Organization
XDR-TB	:	Extremely drug resistant tuberculosis

CHAPTER 1
INTRODUCTION

1.1 Rationale and justification

Tuberculosis (TB) is still a major cause of death worldwide, but the global epidemic is on the threshold of decline (1). Nearly one-third of the global population, i.e., two billion, is infected with Mycobacterium Tuberculosis and at risk of developing the disease (2). Nearly nine million new cases develop every year and TB kills nearly two million people a year – 5000 every day – mainly in the poorest communities in the developing world (3). There were an estimated 8.8 million new TB cases in 2005, 7.4 million in Asia and sub-Saharan Africa. A total of 1.6 million people died of TB, including 195,000 patients infected with Human Immuno-deficiency Virus (HIV) (1). The World Health Organization (WHO) declared TB a global emergency in 1993 in recognition of its growing importance as a public health (2). The past few years have seen remarkable success in global TB control, resulting in an increasing in the detection rate of smear-positive cases from 28% in 2000 to 60% in 2005 and a treatment success rate from 82% in 2000 to 84% in 2004 (4). More than 90% of global TB cases and death occur in the developing world, where 75% of cases are in the most economically productive age group (15-54 years). There, an adult with TB lose and average three to four months of work time. This results in the loss of 20-30 % of annual household income and, if the patient die of TB, an average of 15 years of lost income. In addition to the devastating economic costs, TB imposes indirect negative consequences- children leave school because of their parents' tuberculosis, and women are abandoned by their families as a result of their disease (2). The main reasons for the increasing burden of TB globally are(2): the poverty and the widening gap between rich and poor in various populations, especially in the developing countries, disenfranchised urban populations in developed countries; neglect of the disease for example an inadequate in case detection, diagnosis and care;

collapse of the health infrastructure in countries experiencing severe economic crisis or civil unrest; and the impact of the HIV pandemic.

Significant challenges to TB control remain; these are compounded by the HIV epidemic and the emergence of multi drug-resistant TB and extensively drug-resistant TB. These problems risk compromising the progress made in TB control during the past decade (4).

HIV is the most powerful factor known to increase the risk of TB. TB can occur at any point in the course of progression of HIV infection. The risk of developing TB rises sharply with worsening immune status. Compared with an individual who is not infected with HIV, a person infected with HIV has a 10 times increased risk of developing TB (5).

Although its cause are microbial, clinical and programmatic, drug-resistant TB is essentially a man-made phenomenon. An adequate or poorly administered treatment regimen allows a drug-resistant strain to become the dominant strain in a patient infected with TB. Short-course chemotherapy for patients infected with drug-resistant strains may create even more resistance to the drug in use. Ongoing transmission of established drug-resistant strains in a population is also a significant source of new drug-resistant cases (6).

With an estimated 91,000 TB cases annually, Thailand is on seventeenth on a list of 22 high-burden countries worldwide (7). According to the WHO report 2007, Thailand in 2005 has the incidence of all cases is 142 per 100,000 population per year, the incidence of smear-positive is 63 per 100,000 population per year, and the prevalence of all case is 208 per 100,000 population. However, the new Multi-drug resistant TB (MDR-TB) is 0.9% and the previously treated TB cases MDR-TB is 20% and the (Direct Observed Treatment with short course chemotherapy) DOTS treatment success (2004 cohort) is only 74% (1). It is also said that estimates of burden based on prevalence survey in 1991-1992, incidence assumed to be constant,

but estimated prevalence and mortality rate declining as increasing proportion of cases are treated (8).

Thailand has strong political commitment to combating TB as demonstrated by the Royal Campaign led by his Majesty the King. To maximize the opportunity presented by the campaign, the team encourages a strong community partnership, particularly through the Village Health Volunteers network, and the most effective use of health centers and primary care units. Community engagement is the best weapon in the fight against TB and can accelerate Thailand's efforts to improve the health and well-being of the nation (7). In the report was also stated: "Now is the time to aggressively and to rapidly improve the ability to cure those suffering with TB. These actions will save thousands of lives and reduce the transmission in the community, particularly in the context of emerging MDR-TB and possible extensive drug resistant TB (XDR-TB)," said Dr. Ken Castro, Director of TB elimination, U.S. Centers for Disease Control." (7).

The Thai government has demonstrated a high level of political commitment to TB control activities and implementation of the WHO-recommended DOTS strategy. By joining other high-burden country government in adopting the Amsterdam Declaration to Stop TB in 2000, the government embraced the global TB control targets of 70 per cent case detection and 85 percent treatment success. In 2003, the MoPH declared TB to be one of five "priority diseases" (The other priority diseases are HIV/AIDS, malaria, heart diseases, and diarrhea) (9).

Nongovernmental organizations reported that community activist "lack academic skills" and knowledge about TB themselves, and therefore "don't feel confident" in conducting awareness-raising efforts in their communities. And where communities lack a clear understanding of how TB is spread and treated, stigmatization of persons who have TB and TB/HIV is common. Some TB patients report satisfaction both with services received in community hospitals and with levels of support from family members and neighbors. But fear of stigmatization presents a significant barrier to treatment. Enhanced support for community education and

stigma reduction activities could create a more enabling environment for people to access rather than avoid diagnostic and treatment services (9).

Although the prevalence of tuberculosis is declining from 360 (1990) to 208 (2004), the incidence rate, the multi-drug resistant and the low treatment success (less than 85%) are still the challenge for Tuberculosis Control Program in Thailand. Therefore in order to contribute to attaining the MDG goals by 2015 improving the timely diagnosis and compliance to treatment is to enhance the knowledge on tuberculosis on the community, especially the preventive behavior of the people.

It should be obvious that a disease control program such as TB Cluster should not do without active participation from the community people, community activists or patients. Therefore, there is an reasonable need in assessing the knowledge on TB, perception on TB and consequent behaviors of the target population so that subsequent control strategies and interventions, health education program should be considered in establishing.

It must be made clear at the onset that the primary objective of the present study is to describe the general characteristics, the knowledge and the perception on TB, and TB preventive behavior among the patients attending the out-patient department (OPD) at the Palholpolpayuhasana Hospital.

This study aims to determine the associations between general characteristics, knowledge on TB, perception on TB and TB preventive behavior of the respondents in order to support the decision maker on developing the appropriate plan for improving the effectiveness of TB health education and the tuberculosis control program.

1.2 Research questions

1.2.1 What is the level of preventive behavior towards Tuberculosis for the OPD patients at the Paholpolpayuhasana hospital, Kanchanaburi province?

1.2.2 What are the factors related to the TB preventive behavior for the OPD patients at the Paholpolpayuhasana hospital, Kanchanaburi province?

1.3 Research objectives

1.3.1 General objective

The general objective in this study is to examine the preventive behavior toward tuberculosis disease among the consultation patients at the general OPD at Paholpolpayuhasana Hospital, Kanchanaburi Province.

1.3.2 Specific objectives

In the study the specific objectives were set up as follows:

1.3.2.1 To reveal the TB preventive behavior among the general OPD patients at Paholpolpayuhasana, general hospital.

1.3.2.2 To describe the socio-demographic and economic factors of the patients, i.e., age, gender, education, marital status, occupation, monthly income, personal history of TB, and family history of TB.

1.3.2.3 To assess the knowledge on TB of the patients.

1.3.2.4 To assess the accessibility to TB information of the patients.

1.3.2.5 To describe the perception toward tuberculosis among the OPD patients at at Paholpolpayuhasana, general hospital.

1.3.2.6 To determine the relationship between the socio-demographic factors, knowledge on TB, perception toward TB and the accessibility to information and the TB preventive behavior of the patients.

1.4 Variables of the study

1.4.1 Independent variables

There are 4 main components of independent variables as follows:

1.4.1.1 Socio-demographic and economic characteristics include: age, gender, education, marital status, occupation, family income (per month), personal history of TB, and family history of TB.

1.4.1.2 Knowledge of TB refers to the respondents' understanding of the basic knowledge on tuberculosis such as cause, mode of transmission, risk to get tuberculosis, signs and symptoms of TB suspect, method of diagnosis, treatment and prevention.

1.4.1.3 Perception on tuberculosis meant the respondent's thinking, believes, consciousness about different aspects of tuberculosis, included 4 components of Health Belief Model: perceived susceptibility, perceived severity, perceived benefits, perceived barriers.

1.4.1.4 Accessibility to TB information refers to ensure the content of TB information that is accessible to community and from which media or source they get information, and from whom they received these information. In addition, place where the patient could receive the TB diagnoses or treatment, and fee for TB diagnoses and TB treatment were also included.

1.4.2 Dependent variable

TB preventive behavior of OPD patients attending the general OPD in Paholpolpayuhasana Hospital is the dependent variable. It refers to the respondent's practice to protect him/herself from getting tuberculosis i.e. including the healthy life-style activities, applying the general precaution behavior, and participating in the TB interventions.

1.5 Operational definition

1.5.1 TB preventive behavior refers to the respondent's practice to protect him/her-self from getting tuberculosis such as practicing the healthy life-style activities in order to prevent progression from infection to disease, applying the general precaution on environmental hygiene in order to reduce the risk of getting TB infection, and participating in any TB preventive intervention in order to impeding the spread of TB through the early TB detection, and BCG vaccination.

1.5.2 Knowledge of TB refers to respondents' understanding of the general information about TB in terms of causative agent, routes of transmission, signs and symptoms of the TB suspects, diagnosis methods, method of treatment, and prevention.

1.5.3 Perception on tuberculosis meant the respondent's thinking, believes, consciousness about different aspects of tuberculosis, included four components of Health Belief Model: perceived susceptibility, perceived severity, perceived benefits, perceived barriers and cues to action.

1.5.3.1 Perception of susceptibility defined as the perception of respondents on the risk of TB infection/disease in the context of high burden country.

1.5.3.2 Perception of severity defined as the respondents' opinion on how serious tuberculosis and its consequence in terms of death, disease, discomfort, and disability.

1.5.3.3 Perception of benefits refers to the degree to which the respondents perceived the efficacy of the advised action such as early diagnosis and complete treatment in order to get proper cure without any consequences and prevent transmission to other people around him/her.

1.5.3.4 Perceived of barriers refers to the respondent's opinion perceived the tangible and social/psychological costs of the advised action/intervention such as social stigma, tuberculosis being incurable disease, diagnosis and treatment taking long and being costly.

1.5.4 Accessibility to TB information is considered as "cues to action". It refers to the respondent's readiness activated and stimulated to overt behavior. It includes:

1.5.4.1 Social support such as receiving the advice/information relating to tuberculosis from the significant persons such as village health volunteer (VHV), friends, neighbors/relatives Ex-TB patients, health worker (nurse, MD), pharmacist/ drug seller, private doctor.

1.5.4.2 The contents of advice/information consists of cause of disease, mode of transmission, treatment of tuberculosis, prevention of tuberculosis, service provision with free of charge for diagnosis and place to receive treatment.

1.5.4.3 Source of information or mass media receiving consists of television, radio, newspaper/magazine, posters, loudspeaker, leaflets, poster, and others.

1.5.5 Socio-demographic and economic characteristics

The socio-demographic and economic characteristics refer to age, gender, education level, marital status, occupation, family income, personal and family history of tuberculosis with the definition as the follows:

1.5.5.1 Age refers to real age of respondent up to birthday at the time of study.

1.5.5.2 Gender refers to the sex of respondent.

1.5.5.3 Education refers to the level of respondent's education all obtainment/attainment. This can be divided into six categories: "no education" refers to illiterate, or no formal and informal education. "Primary school" is starting from grade 1 to grade 6. "Secondary school" is starting from grade 7 to grade 9. "High school" is starting from grade 10 to grade 12. "College/vocational school" and "Bachelor degree and higher".

1.5.5.4 Marital status includes single, married, divorced, and widow/widower.

1.5.5.5 Occupation includes government officer, housewife, farmer, worker, student, jobless, and others.

1.5.5.6 Average family income per month is defined as the economic status of the family during the time of study.

1.5.5.7 Number of member in family refers to the total number of people living in the same household.

1.5.5.8 Number of member earn money refers to the total number of people who make money for the family.

1.5.5.9 Personal history of TB refers to the respondent his/herself confirmed of having TB.

1.5.5.10 Family history of TB refers to the family history of TB included the entire member in the household who has/had got TB.

1.6 Conceptual framework

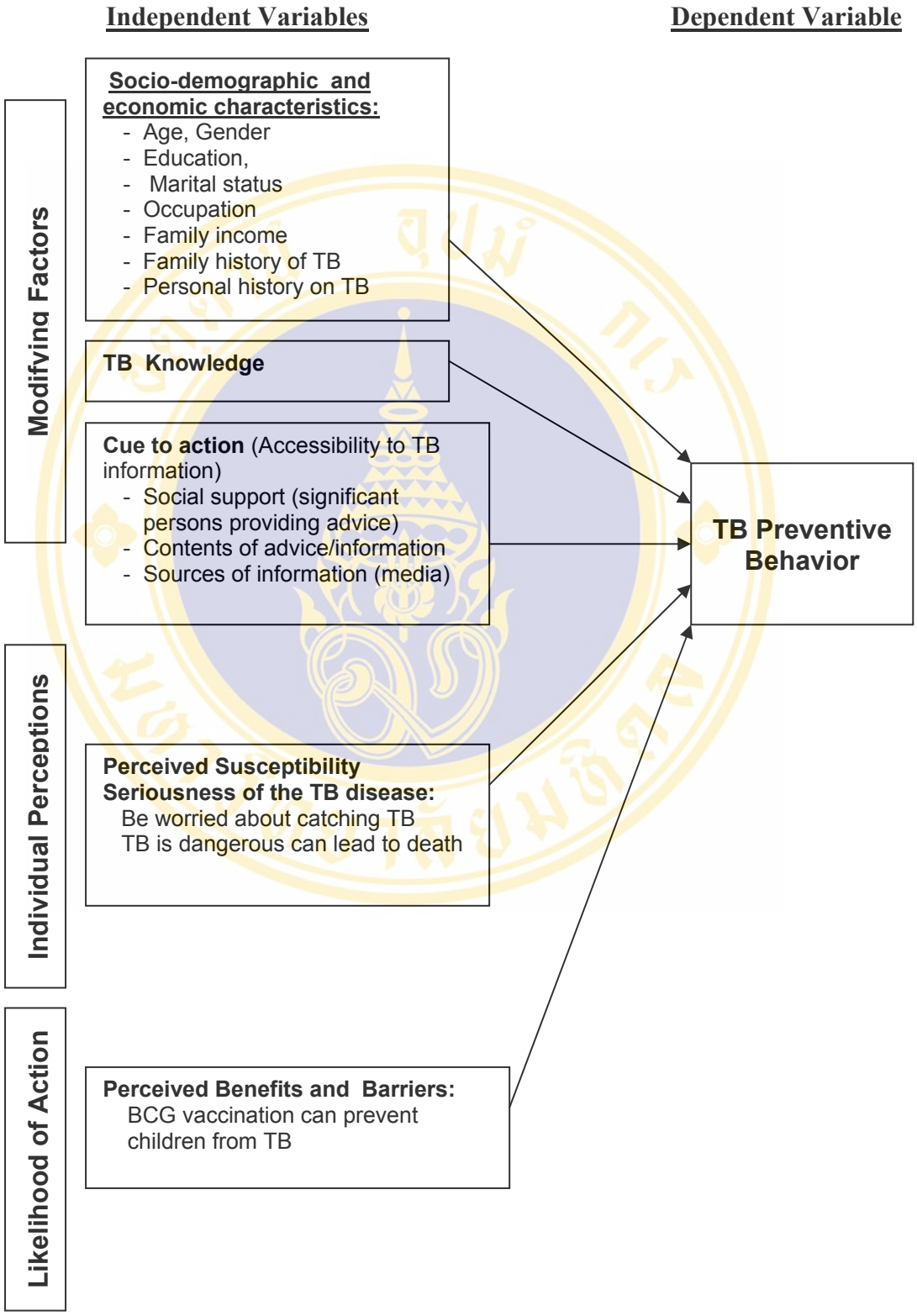

Figure 1 Conceptual framework of TB preventive behavior of general OPD patients in Hospital.

1.7 Scope and limitation of the study

The expected outcome of the study is the assessment of the level of preventive behavior toward TB at the OPD clinic of Paholpolpayuhasana General Hospital in Kachanaburi province, the determination of key factors related to the preventive behavior toward TB. The finding could be used to guide the educational program or intervention to improve knowledge, perception and TB prevention for the general population and also to develop the proper educational materials and to use proper mass media. The finding could also be useful prior to put the volunteers in the responsibility on continuous treatment for TB in order to improve the outcome of the treatment as well as case finding.

Because this study focuses on the OPD patients attending the general OPD at the Paholpolpayuhasana, general hospital, and the researcher is not the local researcher, therefore there was the limitation in communicating for data collection.

CHAPTER 2
LITERATURE REVIEW

2.1 Natural history of tuberculosis

"Tuberculosis" is an old term, referring generically to the small, potatolike ("tuber"), indurated anatomical lesions found throughout tissues involved by this disease. The formal naming of the disease "tuberculosis" is attributed to Johann Lukas Schoenlein in 1839. However, considerable confusion still reigns over this terminology. Considering only the anatomical-histological findings, there are numerous infections, pneumoconioses, and idiopathic diseases such as sarcoidosis which can result in the formation of tuberclelike lesions in human tissues; these disorders, though, have generally been referred as "granulomatous.". Greater controversy still lies with the distinction between diseases caused by the various pathogens of the genus Mycobacterium. The taxonomic grouping of mycobacteria M. tuberculosis, M. bovis, M. microti, and M. africanum as "tuberculosis complex" may cause further confusion. However, given the rarity with which these organisms cause human disease and the vastly differing public health implications for infection by these microbes, it was argued against referring to them as causes of "tuberculosis"(10). Working in his laboratory in Berlin in 1880-1881, Koch modified the methods of Schroeter to create "nutrient gelatin" plates, which revolutionized the science of bacteriology. These honed laboratory skills were to prove vital to Koch in his assault on the mysteries of tuberculosis. Koch commenced work on August 18, 1881; he presented his research findings on TB bacilli on March 24, 1882.

2.2 Factors affecting the risk of tuberculosis

2.2.1 Risk factors of becoming exposed to Mycobacterium TB

The major factors that determine the risk of becoming exposed to tubercle bacilli include the number of incident infectious cases in the community,

the duration of their infectiousness, and the number and nature of interactions between a case and a susceptible contact per unit of time of infectiousness.

Given a defined number of infectious sources, the number of persons who might be exposed to the tubercle bacilli from these cases may vary considerably, depending on the duration of their infectiousness and the number and nature of possible case-contact interactions per unit of time of infectiousness.

While the incidence level of infectious cases is a prerequisite in determining exposure, the duration of infectiousness of an incident infectious case is of crucial importance for the risk of the general population becoming exposed to such a case. The risk of becoming exposed is greatly enhanced if infectiousness is prolonged, as compared with a short duration of infectiousness. The number and nature of possible case-contact interactions will vary greatly according to individual behavior and opportunities for interacting with other people in the community. Obvious factors, which vary by time and geographic location, include: population density, family size, difference in climatic conditions, age of sources of infection, and gender (11).

2.2.2 Risk factors of development of TB disease

The most important risk factor for tuberculosis is infection with tubercle bacilli. Tubercle bacilli are a necessary, but not a sufficient cause of tuberculosis. While the risk of becoming infected is largely exogenous in nature, determined by the characteristics of the source case, environment, and duration of exposure, the risk of developing tuberculosis given that infection has occurred is largely endogenous, determined by the integrity of the cellular immune system (11). Infection with M. tuberculosis can occur at any age. Once infected with M. tuberculosis, a person can stay infected for many years, probably for life. The vast majority (90%) of people without HIV infection who are infected with M. tuberculosis do not develop TB. In these, asymptomatic but infected individuals, the only evidence of infection may be a positive tuberculin skin test (5). In most instances it cannot be determined why a particular person does or does not develop tuberculosis after becoming infected with tubercle bacilli. On the other hand, a multitude of factors has been identified which

increase the risk of progression from the sub-clinical infection with M. tuberculosis to overt tuberculosis (11).

HIV increases the risk of progression of M. tuberculosis infection to TB disease. This risk increases with increasing immunosuppression. HIV increases not only the risk but also the rate of progression of recent or latent M. tuberculosis infection to disease (5). Among people already infected with TB their lifetime risk of clinical TB is about 50 per cent if they have been infected with HIV. This compares with a 5-10 per cent risk if they are HIV negative. The result is a great increase of TB cases where and when the HIV rate becomes high (12).

Age is another risk factor of tuberculosis. There are large differences in tuberculosis by age. Theoretically, these disparities may be attributed to differences in risk or prevalence of infection, differences in disease risk once infected, or both. The trend of commonly observed higher incidence of disease with increasing age can be partly explained by the cumulatively increasing prevalence of tuberculosis infection. Adolescents and young adults appear to be especially prone to progression from latent infection to disease, while children around the age of 10 years appear to be least prone. Variation with stage of maturity is not as likely an explanation of the steady increase in incidence rates among adults up to the age of 60 years. However, there are indications that the risk of tuberculosis following infection increases beyond the age of 60 years (11).

2.3 Tuberculosis disease

2.3.1 Cause, mode of transmission and pathogenesis

Tuberculosis is a bacterial disease caused by Mycobacterium tuberculosis (and occasionally by Mycobacterium bovis and Mycobacterium africanum). These organisms are also known as tubercle bacilli (because they cause lesions called tubercles) or as acid-fast bacilli (AFB). When sputum containing tubercle bacilli is stained with certain dyes and examined under microscope, the bacilli look red. This is because they are acid-fast (they have kept the dye even after

being washed with acid and alcohol). Tubercle bacilli can remain dormant in tissues and persist for many years (5).

The most important source of infection is the patient with TB of the lung, or pulmonary TB (PTB), and who is coughing. This patient is usually sputum smear-positive. Coughing produces tiny infectious droplet nuclei. A single cough can produce 3000 droplet nuclei. Droplet nuclei can also be spread into the air by talking, sneezing, spitting and singing, and can remain suspended in the air for long periods. Direct sunlight kills tubercle bacilli in 5 minutes, but they can survive in the dark for long periods. Transmission therefore generally occurs indoors. Droplet nuclei are so small that they avoid the defenses of the bronchi and penetrate into the terminal alveoli of the lungs, where multiplication and infection begin (5).

Primary infection occurs in people who have not had any previous exposure to tubercle bacilli. Droplet nuclei, which are inhaled into the lungs, are so small that they avoid the mucociliary defenses of the bronchi and lodge in the terminal alveoli of the lungs. Infection begins with multiplication of tubercle bacilli in the lungs. The resulting lesion is the Ghon focus. Lymphatics drain the bacilli to the hilar lymph nodes. The Ghon focus and related hilar lymphadenopathy form the primary complex. Bacilli may spread in the blood from the primary complex throughout the body. The immune response (delayed hypersensitivity and cellular immunity) develops about 4-6 weeks after the primary infection. The size of the infecting dose of bacilli and the strength of the immune response determine what happens next. In most cases, the immune response stops the multiplication of bacilli. However, a few dormant bacilli may persist. A positive tuberculin skin test would be the only evidence of infection. In few cases the immune response is not strong enough to prevent multiplication of bacilli, and disease occurs within a few months (5).

Post-primary TB occurs after a latent period of months or years following primary infection. It may occur either by reactivation of the dormant tubercle bacilli acquired from a primary infection or by reinfection. Reactivation means that dormant bacilli persisting in tissues for months or years after primary infection start to multiply.

This may be in response to a trigger, such as weakening of the immune system by HIV infection. Reinfection means a repeat infection in a person who has previously had a primary infection. The immune response of the patient results in a pathological lesion that is characteristically localized, often with extensive tissue destruction and cavitation. Post-primary TB usually affects the lungs but can involve any part of the body. The characteristic features of post-primary PTB are the following: extensive lung destruction with cavitation; positive sputum smear; upper lobe involvement; usually no intrathoracic lymphadenopathy. Patients with lesions are the main transmitters of infection in the community (5).

2.2.3 Signs and symptoms of pulmonary TB

Patients with active pulmonary tuberculosis experience a wide gamut of manifestations. Some are extremely ill, progressing rapidly to a life-threatening condition; this fulminant sequence was referred to in the past as “galloping consumption.” Other patients have minimal complaints, living for extended periods with very modest and static findings; such persons were deemed “good chronics” in the preche-motherapy era (10).

The most important symptoms of Pulmonary Tuberculosis are cough for more than 2 or 3 weeks with sputum production and weight loss. Symptoms may be either respiratory or constitutional. Common complaints are noted in Table 1:

Table 1 Typical symptoms in pulmonary tuberculosis

Respiratory	Constitutional
Cough (initially dry; later productive)	Malaise
Chest pain (with both primary and reactivation)	Lassitude/weakness
Hemoptysis (sparse early; heavy with cavitation)	Feverishness
Shortness of breath (with advancing disease)	Sweats
Hoarseness (severe with laryngeal involvement)	Anorexia

Over 90% of patients with sputum smear-positive PTB develop a cough soon after disease onset. However, cough is not specific to PTB. Cough is common in smokers and in patients with acute upper or lower respiratory tract infection. Most acute respiratory infections resolve within 3 weeks. Therefore a patient with a cough for more than 2 or 3 weeks is a PTB suspect and must submit sputum samples for diagnostic microscopy (5).

Extrapulmonary TB (EPTB) can occur at any age. Young children and HIV-positive adults are particularly susceptible. Up to 25% of TB cases may present with EPTB. Children of less than 2 years of age are at risk of disseminated disease causing miliary TB or TB meningitis. The common forms of extrapulmonary TB associated with HIV are the following: lymphadenopathy, pleural effusion, pericardial disease, miliary TB, and meningitis. Many patients with extrapulmonary TB also have coexistent pulmonary TB (5).

2.3.3 Tuberculosis diagnosis

The highest priority for TB control is the identification and cure of infectious cases, i.e. patients with sputum smear-positive PTB. Therefore, all patients (regardless of HIV status) with clinical features suggestive of PTB must submit sputum for diagnostic sputum smear microscopy (5). Most cased of pulmonary tuberculosis are diagnosed as the result of the patient feeling unwell and so coming for help to a health centre, a clinic, a hospital or a private doctor (12).

2.3.3.1 Physical examination do not help much. However, the physical examination do carefully the patient may find useful sings (12). **General condition** is sometimes it may be good, in spite of advanced disease. But the patient may be obviously ill. He may be very thin, with obvious loss of weight. He may be pale or have a flush due to fever. **Fever** can be of any type. There may be only slight rise of temperature in the evening. The temperature may be high or irregular. Often there is no fever. **Pulse** is usually raised in proportion to fever. **Finger clubbing** may find especially in a patient with extensive disease. Remember that clubbing is common with lung cancer. **Chest** often there are no abnormal signs. The commonest

is fine crepitations (crackles) in the upper part of one or both lungs. These are heard particularly on taking a deep breath after coughing.

2.3.3.2 Sputum examination by microscope is the most reliable way of making the diagnosis is to find TB in a direct smear of the sputum. Try to have three specimens examined. If only one is positive and the others negative, it is best to confirm with a further positive (because errors, clerical or other, can occur) (12).

2.3.3.3 Chest X-ray for Tuberculosis disease is difficult to diagnose with certainty on an X-ray alone. Never treat such a patient without having examined the sputum. X-rays are expensive and unreliable. Other diseases often look very similar (12). No X-ray pattern is absolutely typical of PTB, especially with underlying HIV infection. X-ray changes in TB/HIV patients reflect the degree of immunocompromise. In mild immunocompromise, the appearance is often classical (with cavitation and upper lobe infiltrates). In severe immunocompromise, the appearance is often atypical (5).

2.3.3.4 Tuberculin skin test is often a less reliable method for diagnosis in poorer countries. Owing to malnutrition, other disease such as HIV infection, or the severity of tuberculosis it can be weak or negative even when the patient (adult or child) has active tuberculosis disease. So that a negative tuberculin test does not exclude tuberculosis (12).

2.3.4 Tuberculosis treatment

It has been known that for over 100 years M. tuberculosis causes TB and the effective anti-TB drugs are also available for nearly 50 years. Yet the world's TB problem is now bigger than ever. The problem is not the lack of an effective treatment, but the problem how to apply Short-Course Chemotherapy (SCC) properly (5). Patient adherence to treatment is necessary to ensure that the treatment cures the patient. Patient adherence to SCC means patient takes every dose of the recommended treatment regimen. It may be difficult for a patient to adhere to anti-TB treatment for 6 to 8 months. It is difficult to predict which TB patients will adhere to self-administered treatment. One certain way to ensure patient adherence to treatment is Direct Observation of Treatment (DOT) (5).

A population of TB bacilli in a TB patient consists of 4 groups, a **metabolically active**, continuously growing bacilli inside cavities; **bacilli inside cells**, e.g. macrophages; **semi-dormant bacilli** (persisters), which undergo occasional spurts of metabolic activity; and **dormant bacilli**, which fade away and die on their own (5) .

Mitchison has proposed the utility of defining three prerequisites for an anti-tuberculosis drug: early bactericidal activity, sterilizing activity, and activity to prevent emergence of resistance to the companion drug. **Early bactericidal activity** is defined as the ability of the drug to kill tubercle bacilli in the first few days of treatment. **Sterilizing activity** is defined as the ability to remove so called "persisters" once the large bulk of rapidly growing organisms has been killed. **Prevention of the emergence of drug resistance** is defined as the ability of a drug to prevent selection of mutants resistant to the companion drug (13).

The aims of treatment of TB are to cure the patient of TB; to prevent death from active TB or its late effects; to prevent relapse of TB; to decrease transmission of TB to others; and to prevent the development of acquired drug resistance (2). Treatment regimens have an initial (intensive) phase and a continuation phase. The initial phase is designed for the rapid killing of actively growing bacilli and the killing of semidormant bacilli. This means a shorter duration of infectiousness. The continuation phase eliminates bacilli that are still multiplying and reduces failures and relapses. The principles of treatment are the same in all TB patients (adults and children). The standard code for short-course regimen have been revised to be in line with WHO as follows (14):

Category I : 2 HRZE / 4 HR ; or 2 HRZS/ 4HR
Category II : 2 HRZES / 1 HRZE / 5 HRE
Category III : 2 HRZ / 4 HR
Category IV : reserved drugs for Multi-drug resistant

The regimen recommended for each patient depends on the diagnostic category for each patient. Category I regimen is for new smear-positive patients; new smear-negative PTB with extensive parenchymal; severe concomitant HIV disease or severe forms of EPTB. Category II regimen is for previously treated sputum smear-positive PTB (relapse; treatment after interruption; treatment failure.). Category III regimen is for new smear-negative PTB (other than Category I); less severe forms of EPTB.

2.4 Tuberculosis prevention

Tuberculosis prevention may include the general health prevention, environmental hygiene, and the way of life style.

The health prevention include teaching or educating the infectious patients to cover their mouths and turn their faces away when they cough (12). BCG vaccination to the children at birth. BCG (Bacille Calmette-Guérin) is a live attenuated vaccine derived originally from M. bovis. The route of injection is intradermal. In countries with high TB prevalence, WHO recommended a policy of routine BCG immunization for all neonates. The benefit of BCG is in protecting young children against disseminated and severe TB, e.g. TB meningitis and miliary TB. BCG has little or no effect in reducing the number of adult cases of PTB (5). Early diagnosis and treatment for the infectious patients are the most potential in tuberculosis prevention. Chemotherapy rapidly reduces infectiousness, usually within 2 weeks. This is why good treatment of all sputum positive patients is far the most effective method of prevention. Exposure to air and sunlight is a good and simple method, particularly in tropics (12).

Environmental hygiene had the aim to reduce the risk from the sputum of undiagnosed infectious patients. There is a limit to what can be achieved in poorer countries. However, reducing overcrowding wherever possible (which also reduces other infectious respiratory diseases, such as pneumonia in infants), improving

ventilation of houses, and helping everyone to think spitting a nasty and unacceptable habit, could help to reduce the transmission of tuberculosis.

2.5 Situation of tuberculosis in Thailand and Kanchanaburi province

In this broader context of socioeconomic development and increased investment in health, the National Tuberculosis Programme (NTP) succeeded in reducing TB incidence by 50 percent in six years, from 150 cases per 100,000 people in 1985-a record for the country-to 76 per 100,000 in 1991. However, TB incidence rose again in the 1990s with the emergence of the HIV/AIDS epidemic, and the deadly interaction of TB and HIV brought new challenges to TB control efforts. With an estimated annual TB incidence of 142 per 100,000, Thailand is 18th on the World Health Organization's (WHO's) list of TB high-burden countries (9).

Public Health Minister Mongkol na Songkhla said Thailand had 91,000 new TB cases reported each year. There are 130,000 patients in total. Of this number, 40,000 people are in the contagious phase. The country also sees 5,000 to 7,000 deaths from TB each year. Most victim are working people between 15 and 44There are 58,639 TB patients registered nationwide but the rate of complete cures is still low at only 75 per cent, below the WHO standard of 85 per cent. This is partially because the patients do not take medicine continuously and so are left contagious (7). Permanent secretary for Public Health Dr. Prat Boonyawongvirot said Thailand had a re-emergence of TB because of the HIV/AIDS outbreak that increased the number of people suffering from TB.

In the context of emerging global threat of multi-drug resistant TB (MDR-TB), and extensively drug resistant (XDR TB), Thailand is advised by a team of international TB expert to get back to the basics in the timely diagnosis and treatment of TB (15).

There is abundant evidence that poverty increases vulnerability to TB, and that having TB can in turn make patients more vulnerable to poverty. While TB treatment

is free, travel to medical facilities, lack of compensation for time off from work, purchase of food during hospital visits, and diagnostic services such as x-rays and sputum examinations (for which patients are often charged, despite official NTP policy) add up to expenses that may limit access to treatment for the poor. (According to official NTP policy, patients have to pay for diagnostic and examination services only if they can afford it.) (9).

On the other hand in Kanchanaburi province the notification of new smear-positive (S+) seems to slightly increase from 371 in 2001 to 438 in 2007 and the treatment outcome for new smear-positive cases seems to improve from 57.89 (2001) to 73.28, but still below the WHO recommendation 85%. However, death rate seems still to be high around 10% (16).

Table 2 Numbers of TB Cases Registered in Kanchanaburi Province from 2001 to 2007

Year	New S (+)	Relapse	TAF S (+)	TAD S (+)	New S (-)	EP	Total cases
2544/2001	19	0	0	0	21	4	44
2545/2002	371	23	14	9	176	133	726
2546/2003	388	19	19	10	239	137	812
2547/2004	423	23	15	28	372	124	985
2548/2005	425	26	15	1	368	110	945
2549/2006	386	13	20	12	286	104	821
2550/2007	438	15	14	11	294	102	874
Total	2450	119	97	71	1756	714	5207

Table 3 Treatment outcome of New Smear Positive TB Cases in Kanchanaburi Province

Year	Cure	Completed	Failure	Die	Defaulter	TO
2544/2001	57.89	5.26	0	15.79	10.53	10.53
2545/2002	55.11	7.39	1.7	19.03	13.64	3.13
2546/2003	57.71	8.78	3.72	8.24	17.29	4.26
2547/2004	53.53	6.81	3.65	7.54	19.71	8.76
2548/2005	59.38	7.21	5.53	10.58	13.22	4.09
2549/2006	73.28	5.23	3.58	10.19	6.89	0.83

Another way, at the general hospital Paholpolpayuhasana, the case-finding from January to September (2007) and the treatment outcome from April to September (2006) as shown in the Table 4.

Table 4 Numbers of TB Cases Registered in Paholpolpayuhasana hospital

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
S (+)	6	4	12	7	14	18	12	13	17	**103**
S (-)	4	4	2	2	2	1	4	5	2	**26**
EP	2	7	7	1	5	6	10	4	0	**42**

Table 5 Treatment outcome of New Smear Positive TB Cases in Paholpolpayuhasana Hospital from April to September 2006

Cure	Complete	Failure	Die	Defaulter	TO
30	32	5	16	11	2
31%	33%	5%	17%	11%	2%

2.6 Public awareness situation on TB in Thailand

The Public Health Minister Mongkol na Songkhla said his ministry will also intensify TB patient search and follow through until they are cured, using the more than 800,000 village health volunteers to search for cases and to ensure patients take drugs continuously for six months. State-run hospitals will focus on transferring patients for care in their own communities (7).

Public awareness of the threat posed by TB is generally low. TB is widely viewed as a curable disease but rare disease, while HIV/AIDS is seen as a fatal disease deserving more attention. NTP media outreach efforts have been minimal, particularly when compared to the scope of national campaigns around HIV/AIDS. In the absence of easily accessible, accurate information about TB and TB/HIV, local organizations lack the resources and knowledge to educate their communities, and stigmatization of people living with TB and TB/HIV continues to be an issue of concern (9).

2.7 Theoretical Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM is first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health

Services. The model is developed in response to the failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS. The HBM is spelled out in terms of four constructs representing the perceived threat and net benefits: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These concepts are proposed as accounting for people's "readiness to act". An added concept, cues to action, will activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of self-efficacy, or one's confidence in the ability to successfully perform an action. This concept is added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating (17).

Marshall H. Becker (1974) developed the concepts of a health belief model by expanding upon the works of Reosenstock who studied individuals' reasons for not participating in health-screening programs. Health belief from Becker's point of view is based upon the idea that an individual must have the willingness to participate in health interventions and believe that being healthy is a highly valued outcome. Therefore, it is possible to predict if an individual will engage in positive health behaviors by individuals' perception of the disease, illness or accident, identification of modifying factors, and the likelihood that the individual will take some action. The most influential factor within Becker's model that may prevent an individual from engaging in healthy behaviors is the perceived barriers. Becker's model can be found in Figure 2 (18):

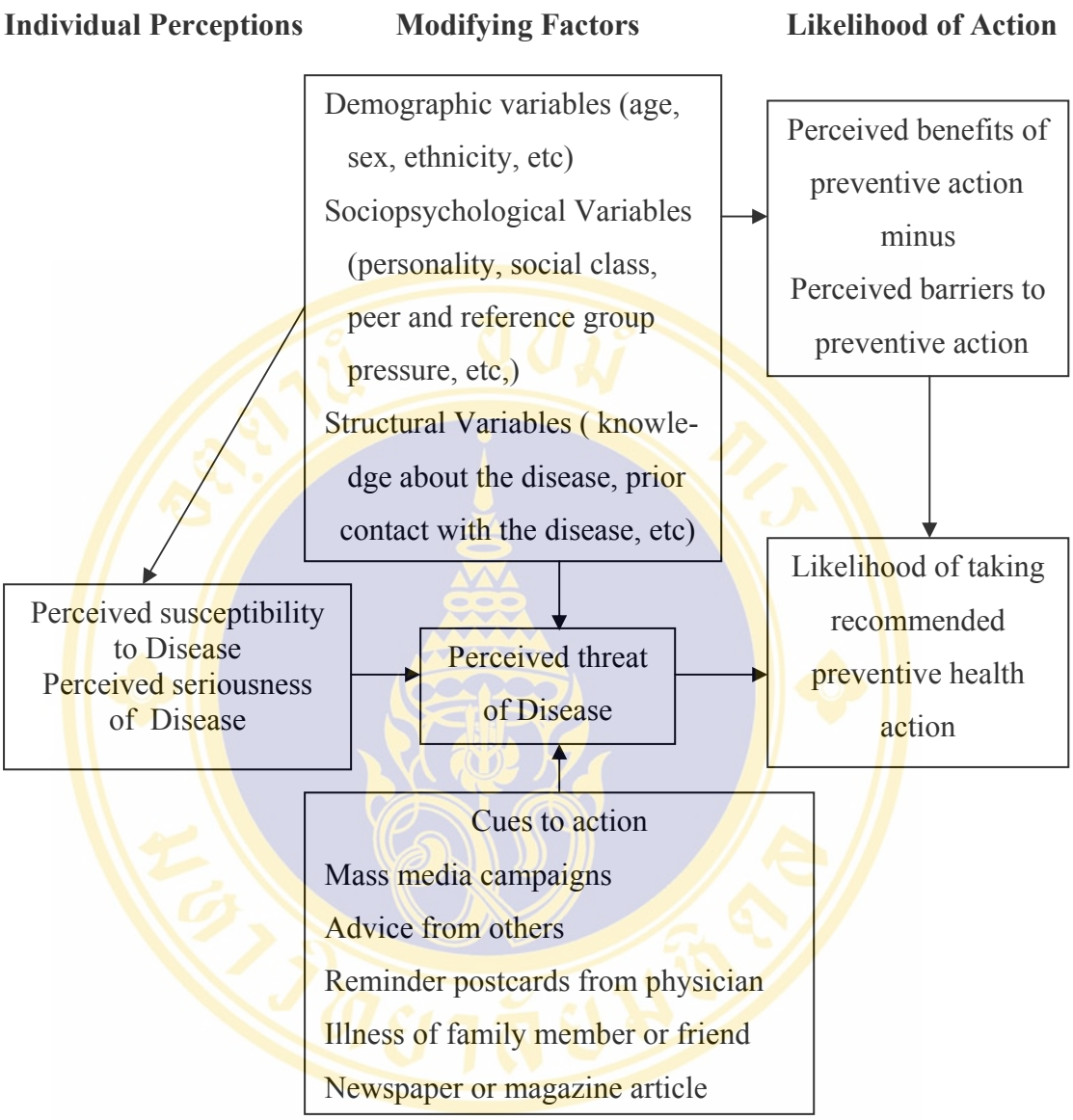

Figure 2 Becker's The Health Belief Model

2.7.1 Perceived susceptibility

This dimension refers to one's subjective perception of the risk of contracting a health condition. In the case of medically established illness, the dimension has been reformulated to include acceptance of the diagnosis, personal estimates of susceptibility and susceptibility to illness in general.

2.7.2 Perceived severity

Feeling concerning the seriousness of contracting an illness or leaving it untreated include evaluations of both medical and clinical consequences (e.g. death,

disability and pain) and possible social consequences (such as effect of the conditions on work, family life and social relations). We have come to label the combination of susceptibility and severity as perceived threat.

2.7.3 Perceived benefits

While acceptance of personal susceptibility to a condition also believed to be serious (perceived threat) produces a force leading to behavior, the particular course of action that will be taken depends upon beliefs regarding the effectiveness of the various actions taken in reducing the disease threat, termed the perceived benefits of the taking health actions. Thus as individual exhibiting an optimal level of beliefs in susceptibility and severity will not be expected to accept and recommended health action unless that action is perceived as potentially efficacious.

2.7.4 Perceived barriers

The potential negative aspects of a particular health action, or perceived barriers, may act as impediments to undertaking the recommended behavior. The individual engages in a cost-benefits analysis where they weight action's effectiveness against perceptions that may be expensive, dangerous (having negative side effects or iatrogenic outcomes), unpleasant (painful, difficult, upsetting, inconvenient) time-consuming and so forth. Thus the combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (less barriers) provide a preferred path of action.

2.7.5 Cue to action

In various early formulation of the Health Belief Model (HBM) the concept of cues which trigger action are discussed and may ultimately prove to be important, but they have not been systematically studied. According to the Becker, it is refers to the social support such as advice/information from the significant persons, sources of information such as television/radio, and finally to the experience of illness of themselves/their families/neighbors (18).

2.8 Related studies

According to the Nam Mai's study on community knowledge perception and their preventive practice about tuberculosis infection in the setting of Quang tri province, by using descriptive cross-sectional survey is conducted in 2002 with a total of 146 households (146 respondents) found only 26% had a good level of knowledge. About 81.5% had a good level of perception and only 43.8% had a good preventive practice on TB infection (19). Another conducted by Tung Minh Duong in Ca Mau city, Vietnam, 2005 found that showed that more than one-third (33.7%) of the respondents had good level of TB preventive behavior and more than a half (57.8%) of the respondents had good level of knowledge (20).

According to the Rita L. Aiinger's study on 505 minority participants in Kansas City, the respondents knew about symptom (89%) than they did about routes of transmission (57%), etiology (55%), high-risk population (53%), and treatment (49%). In a study of 248 symptomatic TB patients, one of the key factors in their delay of seeking medical care for more than 60 days is their belief in the efficacy of treating themselves (21). Despite this acknowledged need for TB health education in the literature, there has been minimal apparent notice of the need for TB health education for the general public. Knowledge about TB has seldom been estimated in research, and no previous studies on a national scale have been reported. In the study by Rita L. Ailinger also showed that education is a factor in knowledge; 15,4% of the respondents with less than high school education versus 26.9% with high school education responded that they knew how TB is spread[19]. According to a study by Rita L. Ailinger, age is associated with correct answers about the ways in which TB is spread. Older people responded correctly more frequently than young people. Family income is also associated with TB knowledge; 26.1% of those people at or above the poverty line answered all the questions correctly, compared with 17% of those people below the poverty line (19).

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study design

The research design is a cross-sectional study aiming to examine the preventive behavior on tuberculosis and describe the general characteristics, knowledge, perception, accessibility to TB information of the patients attending the general OPD of a provincial public hospital in Thailand.

3.2 Study site

Kanchanaburi province is one of provinces along the Thailand-Myanmar border, located in the central and east of Thailand, covers an area of approximately 19,473 square kilometers and is presently the third largest province in Thailand after Chiang Mai and Nakhon Ratchasima, situated approximately 129 kilometres west of Bangkok. The total population was 834.447.

Paholpolpayuhasana General Hospital which is a public hospital was selected as the study site. It was one of the 2 general hospitals in the Kanchanaburi province: Paholpolpayuhasana Hospital and Makarak Hospital Paholpolpayuhasana was selected to study. The study was focusing on the patients utilized health care services at general out-patient department (OPD) in Paholpolpayuhasana Hospital, Kanchanaburi province.

3.3 Population and sample size calculation

The study population was general patients aged 15 years and above consuming the general out patient department section in Paholpolpayuhasana General Hospital,

from January 28 to February 01, 2008.

3.3.1 Inclusion criteria

All the patients who attended at the out patient department were included in the study sample when they met the inclusion criteria as follows:

3.3.1.1 Patients attending the general OPD of Paholpolpayuhasana with aged 15 years and above, and

3.3.1.2 willing to provide the answer to the study questionnaires.

3.3.2 Exclusion criteria

With respect to the exclusion conditions, patients who comprised the following criteria would be excluded from the sample:

3.3.2.1 Patients could not speak (mute) or listen (deaf) or see (blind).

3.3.2.2 Patients were in the serious condition.

3.3.2.3 Patients had mental health problems.

3.3.2.4 TB patients had been receiving the TB treatment.

3.3.3 Sample size calculation

The estimated sample size was calculated based on the following formula (22):

$$n = \frac{z^2 P(1-P)}{d^2}$$

Where,

n = desired sample size

z = value from normal distribution associated with 95% confidence level

p = proportion of TB preventive behavior = 0.44 [20]

d = maximum allowance error, set at 0.065

Therefore, this sample will be calculated with $Z\ \alpha_{/2} = 1.96$, p=0.44, d=0.065.

$$n = \frac{(1.96)^2(0.44)(1-0.44)}{(0.065)^2}$$

So, the sample size required for the study was at least 225 cases.

3.4 Sampling technique

As stated in the above, patients attending the Paholpolpayuhasana hospital at OPD section are the target of this research. Basis of selection is that studied hospital is one among the 12 provinces near the Thailand-Myanmar border and with the high mortality rate from tuberculosis, where the context of multi-drug resistant and extensively drug resistant TB is worried about. Subsequently, the systematic sampling was used in order to draw a sample at the general or medical OPD in order to get information about TB preventive behavior. We considered that OPD patients had the same level of education.

The sampling interval " k " was calculated by addressing the formula as below:

$$k = \frac{a}{n} xd$$

where,

k : the sampling interval

a : the average number of patients attending general OPD per day

n : the required sample size

d : the number of day to collect the data

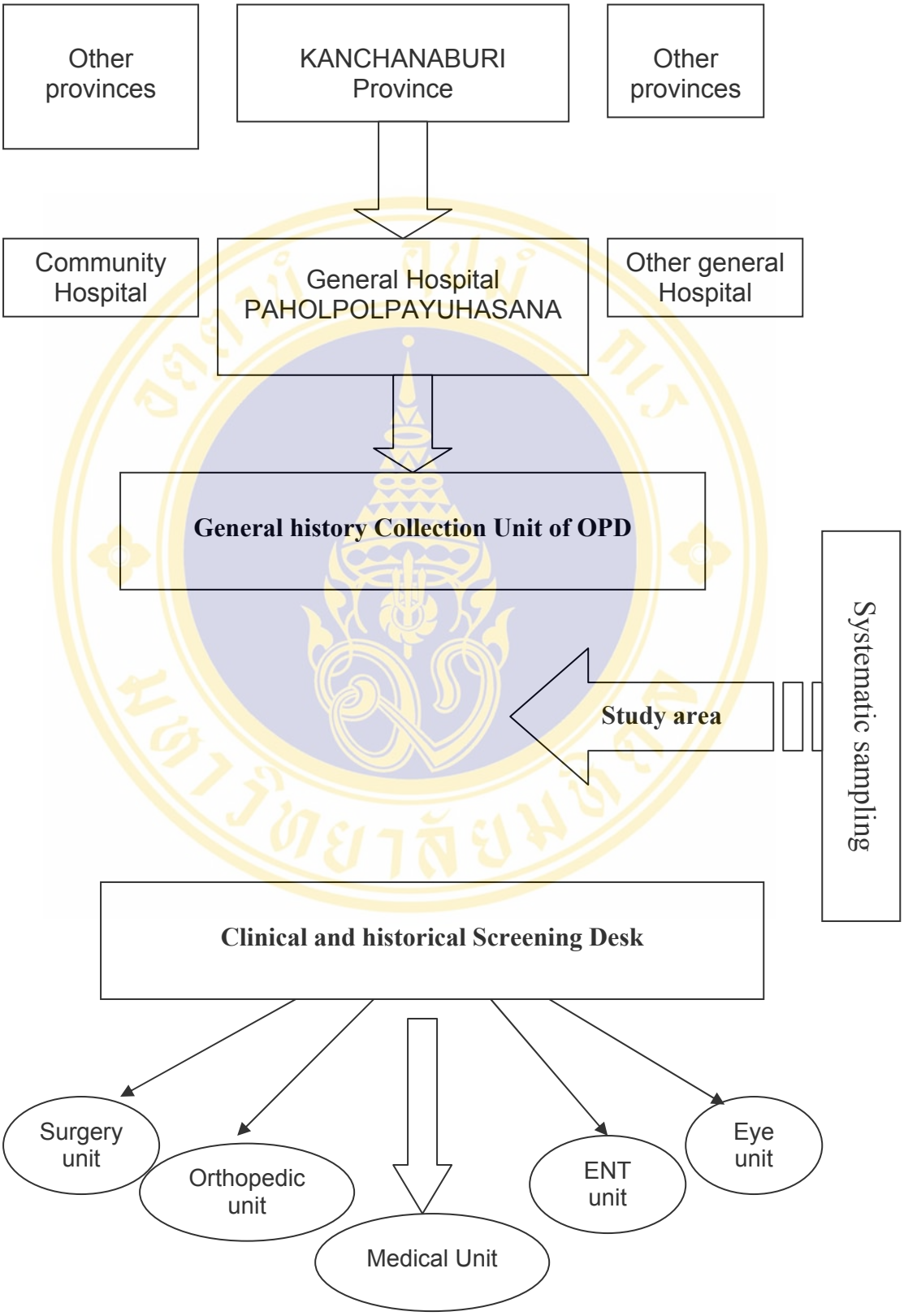

Figure 3 Diagram for Sampling technique

During visiting at the Paholpolpayuhasana, general hospital, it was estimated that around 100 patients consuming the general OPD during the time in which data collector could operate the data collection per day, and the planned day to collect data was 5 days, so the sampling interval "k" was equal to 3. Therefore, first case of sample was selected between 1 and 2, then next case was chosen by adding the sampling interval to the number of the first case. Thus the following cases were selected each day: 2, 4, 6,…..,90. At least, 45 cases were selected each day

$$k = \frac{100}{225} x\, 5 = 2$$

3.5 Research instruments

Marshall H. Becker (1974) developed the concepts of a health belief model by expanding upon the works of Reosenstock (1950) who studied individuals' reasons for participating in health-screening programs Rosenstock's / Becker's was used to examine preventive behavior on tuberculosis of the sample. Based on the BECKER's Health Belief Model, structured questionnaire was developed and was used as a tool in the study and constructed with closed/end questions/statements. It was translated into Thai and focusing on individual's perception, likelihood to act, and modifying factors which consists of five parts as the followings:

Part I Socio-demographic and economic factors consisted of 10 items about age, gender, education, marital status, occupation, family income, number of member in the family, family member who earn money, personal history of TB and family history of TB.

Part II Knowledge of tuberculosis was comprised of 19 items. In the questionnaire, the knowledge was classified into 3 categories: "True", "False", and

“Don’t know”. If correct answer is given one point, zero point is provided to “false” and “don’t know” answers.

Part III Perception on tuberculosis consisted of 4 subscales of the health belief model “perceived susceptibility, perceived seriousness, perceived benefit and perceived barriers”. The 3 point-rating scale: “Agree”, “Uncertain”, and “Disagree” were mentioned in this part. For the positive questions, if the respondent’s answer was “Agree” the score of 3 would be provided, for “Uncertain” answer the score of 2 would be provided, and “Disagree” would get at score of 1. For the negative questions set up opposite scores, “Agree” was scored 1, “Uncertain” was scored 2, and “Disagree” was scored 3.

Part IV Accessibility to TB information (cues to action) comprised 24 items. It was divided into 3 main subsections (components) including social support or significant persons who influenced on the respondents, type or contents of the ‘TB information and source of information received (mass media). This part was the multiple responses part which meant that the respondents could answer as many as they had. There were 19 items. The question in this part was dichotomous: “Yes”, and “No” in order to understand how many respondents have heard about tuberculosis and how many respondents have never heard about it. The rest were also dichotomous question, but it meant to choose and not choose.

Part V Tuberculosis preventive behavior consisted of 12 items. There were 3 subscales in this TB preventive behavior including health prevention, environmental hygiene, and healthy life style of the respondents. The 3 point-rate scale: “Always”, “Sometimes”, and “Never” were used in the questionnaire. For the positive statement, if the respondent’s answer was “Always”, they would got a score of 3, “Sometimes” would got a score of 2, and “Never” was at score of 1. For the negative statement set up opposite scores, “Never” got a score of 3, “Sometimes” was at score of 2, and “Always” was at score of 1.

3.6 Pre-testing of the questionnaires

Before collecting data, the pre-testing of the questionnaires were conducted with 30 patients in the Makarak hospital, one of the general hospital in Kanchanaburi province, located at Makarak district. This pre-testing was done, after developing the questionnaire and checked its validity by referees and experts in TB field, and then it was translated into Thai. Its reliability was measured by using Kuder-Richardson formula 20 (KR20) for the knowledge part and Cronbach's Alpha for the perception part. The result was 0.70 on KR20 and 0.68 on Cronbach's Alpha. Some questions were revised to make them more understanding.

3.7 Methods for data collection

Four health workers who were working at general OPD of Paholpolpayuhasana general hospital were selected and received half day training on the data collection process, especially on how to select the patient, how to explain the patients to fill in properly the questionnaires, how to check or verify the questionnaire on the spot after completing by the patients.

Data was collected by using a self-administered questionnaire after asking permission and explaining the purpose of the study. All study samples were taken from patients visited the OPD clinic of Paholpolpayuhasana General Hospital. The 1st number of sample was randomly selected between 1 and 2, then next case was chosen by adding the sampling interval to the number of the first case. Thus the following cases were selected each day: 2, 4, 6,…, 90. At least, 45 cases were selected each day. The selected patients were requested to fill in the questionnaire while waiting for clinical screening at the clinical screening section with the nurses. The 1st number of sample was randomly selected between " 1 " and " 2 " . The procedure for data collection is when patient arrived at the OPD for medical care they were registered by the patient's general history collection unit. Then the patients were sent to the clinical history collection desks of the OPD clinic where they had to be checked for blood

pressure, pulse, temperature, information about underlying diseases and allergic to medicines, before consulting with the physician. In this study, patients were identified for data collection during the time they waiting to clinical and historical screening. They were requested by the interviewers to provide their general and specific information according to the questionnaire. The data were checked on the spot, error rectified and missing data incorporated in the forms.

3.8 Data analysis

3.8.1 Data entry and editing

After the data collection was completed, all the data were entered by using EpiData 3.0 program. Steps were to be as the follows:

3.8.1.1 Each item was coded and checked consistency of coding in all questionnaire forms by using coding table;

3.8.1.2 Entering data; and

3.8.1.3 Checked and edited consistency of data in all variables.

3.8.2 Scoring and classification criteria

Knowledge on tuberculosis, perception on tuberculosis and the TB preventive behavior of the respondents were measured as follows:

3.8.2.1 The knowledge about tuberculosis was measured by 19 item relating to the cause, mode of transmission, signs, symptoms, diagnosis, treatment and prevention. Correct answer was given a score of 1, incorrect or “don’t know” was given a score of 0. For the positive statement if the respondents selected “True” they got one point, and if they chose the “False” or “Don’t know” they got zero point. In contrast, for the negative statement, the score 1 was provided to the respondents who answered the “don’t know”, and the score 0 was given to someone who selected the “True” or “False”. The total scores were obtained by summing scores raging from 0 to 19 points. However, the mean score or average score of each respondent was used in this part because few respondents missed answering few questions. The respondents’ knowledge was classified into 3 levels: “Good knowledge level”,

"Moderate knowledge level", and "Low knowledge level" using percentile as a cut of point as the distribution of the data was not normal.

3.8.2.2 Perception on tuberculosis was assessed by asking to the patients with 18 items regarding to perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. They were measured on a 3 rating scale as "Agree", "Uncertain", and "Disagree". For the positive questions, if the respondent's answer was "Agree" the score of 3 would be provided, for "Uncertain" answer the score of 2 would be provided, and "Disagree" would get at score of 1. For the negative questions set up opposite scores, "Agree" was scored 1, "Uncertain" was scored 2, and "Disagree" was scored 3. The perceived susceptibility subscale contained 6 items and its total score could range from 6 to 18 on susceptibility. The perceived severity subscale consisted of 4 items; total scores could range from 4 to 12 on severity. The perceived benefits subscale contained 4 items and total scores could range from 4 to 12 on benefits. The perceived barriers subscale comprised 4 items; total scores can range from 4 to 12 on barriers. The higher the score on the subscales of the susceptibility, severity, and benefits, the greater the perception held. Lower the score on these subscales indicated that respondents hold these beliefs less strongly. Higher scores on the barrier subscale indicated that the respondents do not believe in the efficacy of the TB preventive intervention. Conversely, lower scores on the barrier subscale indicated that the respondents believed that there were few reasons involving in the TB preventive intervention. The maximum and minimum possible scores were 54 and 18 respectively. The mean score or average score was considered in this part because a few of respondents missed answering some questions. The respondents' perceptions on tuberculosis were classified into 3 levels: "Strong perception" on tuberculosis, "Moderate perception" on tuberculosis, and "Low perception" on tuberculosis using percentile as the cut of point because the distribution of the data was not normal.

3.8.2.3 TB preventive behavior was assessed by asking the patients with 12 items regarding to practice the healthy life-style activities in order to prevent progression from infection to disease, applying the general precaution on environmental hygiene in order to reduce the risk of getting TB infection, and

participating in any TB preventive intervention in order to impede the spread of TB through the early TB detection, and BCG vaccination. They were measured on a 3 rating scale as “Always”, “Sometimes”, and “Never”. For the positive statement, if the respondent’s answer was “Always”, they would got a score of 3, “Sometimes” would got a score of 2, and “Never” was at score of 1. For the negative statement set up opposite scores, “Never” got a score of 3, “Sometimes” was at score of 2, and “Always” was at score of 1. The maximum and minimum possible score were at 39 and 13 respectively. The mean score or average score would be considered in case any respondent missed answering any questions. The respondents’ preventive behavior was categorized into 3 levels “Good TB preventive behavior”, “Moderate TB preventive behavior”, and “Poor TB preventive behavior”. Regarding the cut of point in this part, the percentile was used because the distribution of the data was not normal.

3.8.3 Statistical analysis

Minitab program was used to analyze the data. Descriptive statistics such as percentage, mean, standard deviation, percentile, minimum, and maximum were used to describe the general characteristics, knowledge on tuberculosis, perception on tuberculosis, accessibility to tuberculosis information, and TB preventive behavior. Inferential statistics such as Chi-square test and Fisher exact test were used to determine the association between each independent variable and dependent variable. The critical significance of these statistical level was set at $\alpha = 0.05$.

3.9 Ethical consideration

After getting the permission from the director of the Paholpolpayuhasana Hospital, with the permission from Ethics Committee of Public Health, Mahidol University, and verbal consent for observation and interview from patients, the research study was performed. In addition to the administration, with respect to the individual respondent’s right, any name and individual information was not shown to the public or in the article or any publication.

CHAPTER 4
RESULTS

The study was conducted with patients consulting at the OPD department of the provincial general hospital, Paholpolpayuhasana, Kanchanaburi province. The sample consisted of the OPD patient aged 15 years and above. The data from the self-administrated questionnaire was collected by the 3 trained health workers working in the hospital under the coordination from the head nurse of OPD section who also received the training. Two hundred and twenty five OPD patients were willingness to involve in the study and successful in answering the questionnaire by themselves after explaining the purpose of the study and building up the consensus by the data collectors.

Marshall H. Becker (1974) developed the concepts of a health belief model by expanding upon the works of Reosenstock (1950) who studied individuals' reasons for participating in health-screening programs Rosenstock's / Becker's was used to examine preventive behavior on tuberculosis of the sample.

The purpose of the study was aimed at describing the TB preventive behavior among the OPD patients. The results of this study were presented in 6 parts as follows:

Part1 Socio-demographic and economic characteristics

Part2 Knowledge of tuberculosis

Part3 Perception on tuberculosis

Part4 Accessibility to TB information

Part5 TB preventive behavior

Part6 The association between the TB preventive behaviors with the knowledge of tuberculosis, the perception on tuberculosis, the accessibility to TB information, and the socio-demographic and economic.

4.1 Socio-demographic and economic factors

Descriptive statistics were used to describe the socio-demographics and economics of the respondents in the study. Table 6 presents the socio-demographic and economic data of the respondents, included age, gender, education level, marital status, occupation, family income, and the personal or family history about tuberculosis.

Table 6 shows that more than half of the sample, 53.33% was between 23 and 42 year of age. About one fourth of them, 24% were between of 43 and 70 year of age, and slightly more than one fifth of the sample, 22.67% aged from 15 to 22 years old.

Table 6 Frequency distribution of the respondents by socio-demographic and economic factors.

General characteristics	Number	Percent
Age in years		
15 – 22	51	22.67
23 – 42	120	53.33
43 – 70	54	24.00
Min.= 15 Max.= 70 Median=30 Q.D=9.5 Q1=23 Q3=42		
Gender		
Male	89	39.56
Female	136	60.44
Education		
Primary school	66	29.33
Secondary school	38	16.89
High school	43	19.11
College/vocational school	37	16.44
Bachelor degree/higher	41	18.22

Table 6 Frequency distribution of the respondents by socio-demographic and economic factors.(cont.)

General characteristics	Number	Percent
Marital status		
Single	74	32.89
Married	126	56.00
Widowed	8	3.56
Divorced/separated	17	7.56
Occupation		
Laborer/worker	34	15.11
Farmer	30	13.33
Government official	39	17.33
Street vendor	6	2.67
Student/pupil	31	13.78
Housewife	23	10.22
Unemployed	11	4.89
Private business	49	21.78
Other	2	0.89
Income in Baht		
2.000 to 6999	51	24.06
7.000 to 20.000	122	57.55
20.001 to 85.000	39	18.40
Min.= 2,000 Max.= 85,000 Median=10,000 Q.D=6,500 Q1=7,000 Q3=20,000 Mean = 15.187 SD=14533.9		
Personal history of TB		
Yes	3	1.33
No	222	98.67
Family history of TB		
Yes	8	3.56
No	217	96.44

The representation of women in this sample was more than half (60.44%) of the respondents, whereas men had approximately 39 percent. In the question relating the education background, the education level of the respondents was nearly one third of the sample, 29.33 percent had education level at primary school level, and approximately nearly one fifth of them, 19.11 percent had education level at high school. Here too, nearly one fifth of the sample, 18.22 percent was at Bachelor degree or higher level. Using Chi-square test for Goodness of Fit, the results showed that there was not significant difference of percentages of education level among the patients.

According to statistical information on marital status of the respondents, there were slightly more than half of the sample, 56 percent was at married condition, and about one third was at single status. The rest, 7.56 percent was at divorced or separated and 3.56 percent at widowed status.

Regarding to respondents' occupation, the chart shows that slightly more than one fifth of them, 21.78 percent had his or her own private business. Here too, the occupation of the sample, 17.33 percent was government employees, 15.11 percent was laborer or worker, 13.78 percent was student, and 13.33 percent was farmer. The rest were housewife 10.22 percent, unemployed 4.89 percent, street vender 2.67 percent, and other 0.89 percent.

In addition, Table 6 also shows about the family income of the respondent. It was seen that nearly one fourth of the respondents, 24.06% had family income less than 7,000 Baht per month. Slightly more than haft of them, 57.55% had family income between 7,000 and 20,000 Baht. Only nearly one fifth of the respondents, 18.40% had family income more than 20,000 Baht. Lastly, Table 6 shows about the history of the tuberculosis relating to the respondents and their family member. Regarding personal history of TB only 3 respondents among the 225 respondents who declared used to get TB disease. With respect to the family history of TB only 8 respondents announced that their family member had got tuberculosis.

4.2 Knowledge about tuberculosis

In order to examine the respondents' knowledge, the OPD patients were asked 19 questions on knowledge of cause, mode of transmission, risk to get TB, signs, diagnosis, treatment, and prevention including 6 negative statements. According to this TB knowledge of the patients was divided into two subscales. The first subscale consisted of cause, mode of transmission and risk to get TB. The second subscale included signs, diagnosis, treatment and prevention as shown in Table 7.

For the classification of the knowledge level of the OPD patients was measured into 3 levels, in which, the "good knowledge" was determined as greater than the third quartile, the "moderate knowledge" were from the first quartile to the third quartile, and "low knowledge" assigned as lower than the first quartile. Quartile was used as the cut of point in this part because the distribution of the data was not normal with p-value < .001.

Table 7 The percentage of the overall level of knowledge of tuberculosis.

Variables	Total sample (n)	Level of knowledge about TB (%)		
		Good	Moderate	Low
Overall knowledge	225	26.22	50.67	23.11
Min.= 0 Max.= 0.895 Median=0.5263 Q.D=0.1052 Q1=0.4211 Q3=0.6316				
Cause, mode of transmission, risk to get TB	225	12.44	62.67	24.89
Min.= 0 Max.= 1 Median=0.5556 Q.D=0.1562 Q1=0.3542 Q3=0.6667				
Signs, symptom, treatment and prevention	225	14.67	63.56	21.78
Min.= 0 Max.= 1 Median=0.5 Q.D=0.15 Q1=0.4000 Q3=0.7000				

The overall result of the knowledge part was showed in Table 7. It was revealed that slightly more than half of the respondents, 50.67 percent had the knowledge about tuberculosis in the level of moderate. Only one fifth of the study sample, 26.22 percent had the knowledge at good level. Table 7 also shows the result of the two subscales of the knowledge part. The first subscale, Table 7 shows that there was quite different between the proportion of good knowledge with 12.44 percent and low level of knowledge with 24.89 percent. For the second subscale of the knowledge part, only 14.67 percent of the sample had good knowledge about tuberculosis and 21.78 percent of them had low level of TB knowledge.

Regarding each item of the knowledge, Table 8 shows that most of respondents had knowledge in the following; 82.14 percent known as that tuberculosis is caused by germ, 68.00 percent known as tuberculosis was transmitted through respiratory tract, 65.18 and 66.07 percent respectively, known as coughing more than 3 weeks was one of the symptom of tuberculosis suspect, and as coughing out blood was one of the symptom of tuberculosis suspect. Especially, 64.44 percent of the respondents understood that TB patient could lead to the MDR-TB patients in case of irregular or uncompleted taking TB drug. Only 38.39 and 26.22 percent had respectively the knowledge on BCG vaccination to prevent the children from tuberculosis and can contact with the TB patient when they are taking anti-TB drugs in the initial phase of treatment.

On the other hand, 41.96 percent, 52.02 percent, 61.88 percent, 18.83 percent, still thought respectively tuberculosis was hereditary disease, transmission of tuberculosis through blood, mosquito bite, eating or drinking together.

Table 8 Frequency distribution of the respondents by the correct answer on TB knowledge by items.

Statement	Correct answer	
	Number	Percent
Cause, and risk to get TB		
1 Tuberculosis is an infectious disease caused by germs.	184	82.14
2 Tuberculosis is hereditary disease.	94	41.96
3 TB germs is killed easily by sunlight.	63	28.25
4 Tuberculosis can be transmitted from patient through blood system.	116	52.02
5 Tuberculosis can spread by mosquito bite.	138	61.88
6 TB can be transmitted from patients through respiratory system.	153	68.00
7 TB is spread through eating and drinking.	42	18.83
8 The laboured work can increase the risk to get TB.	103	45.98
9 HIV/AIDS can increase the risk to get TB.	123	54.91
Signs, symptoms, diagnosis, treatment and prevention		
10 The following are signs and suspected symptoms of TB		
10.1 Coughing longer than 3 weeks is one of signs suspected TB.	146	65.18
10.2 Coughing out bloods is one of symptoms suspected TB	148	66.07
10.3 Wheezing, remittent dyspnoea is one of symptoms suspected TB.	119	53.36
10.4 Anorexia, indistinct fatigue and loss of weight is one of signs suspected TB	117	52.23
10.5 Indistinct fever and night sweats are symptoms of suspected TB.	92	41.63

Table 8 Frequency distribution of the respondents by the correct answer on TB knowledge by items.(cont.)

Statement	Correct answer	
	Number	Percent
11 Sputum examination is positive method to detect lung TB.	101	45.09
12 TB is cured if anti-TB drugs are taken regular and continuously at least for 6 months of treated regimen.	124	55.11
13 The treated case is broken and taken drugs irregular can lead to multi-drug resistant.	145	64.44
14 People do not need to limit contact with lung TB patients when they are taking anti-TB drugs in initial phase of treatment regimen.	59	26.22
15 BCG is vaccine that can prevent children from TB.	86	38.39

4.3 Perception on tuberculosis

Eighteen questions were asked in order to examine the respondents' perception on tuberculosis. Among 18 items, there were 7 negative statements. According to The Becker's Health Belief Model the perception of the patients was divided into four subscales, perceived susceptibility, perceived severity, perceived benefit, and perceived barrier as shown in Table 9. For the classification of the perception level of the OPD patients was measured into 3 levels, in which, the "strong perception" was determined as greater than the third quartile, the "moderate perception" were from the first quartile to the third quartile, and "low perception" assigned as lower than the first quartile. Quartile was used as the cut of point in this part because the distribution of the data was not normal (p-value < .001).

Table 9 shows the percentage distribution of overall perception on tuberculosis and the other 4 subscales. Nearly one fifth of the respondents, 19.11 percent had the strong perception on tuberculosis, while 62.67 percent and 18.22 percent of the respondents had moderate and low level of perception, respectively. This result displayed that the respondents who had strong perception on tuberculosis, 19.11 percent was slightly more than the respondents who had low perception on tuberculosis, 18.22 percent.

Table 9 also shows the result of the four subscales of the perception part. First, the susceptibility subscale, there were percentage distribution with strong level at 18.67 percent, moderate level at 72.44 percent, and low level at 8.89 percent. This perceived susceptibility was measured for the chance of contracting tuberculosis, so this result indicated that slightly less than one fifth of the respondent, 18.67 percent were strongly concerned about acquiring tuberculosis. Second, concerning the severity subscale, none of the respondent got strong level, while 75.11 percent and 24.89 percent of the respondents had moderate level and low level of perception, respectively. This result indicated that the nearly one fourth of the respondents, 24.89 percent perceived tuberculosis disease not to be a serious disease. Third, the benefit subscale had strong level with 19.11 percent, moderate level with 67.11 percent, and low level with 13.78 percent. Therefore, perceived benefits to any intervention indicated that mainly of the respondents (strong level and moderate level: 86.22%) endorsed taking the tuberculosis intervention. Finally, the barrier subscale had got strong level at 21.34 percent, moderate level at 61.33 percent, and low level at 17.33 percent. This result meant that 17.33 percent of the respondents felt that any interventions on tuberculosis were still obstacles.

Table 9 Frequency distribution of the respondents about the overall perception on tuberculosis.

Variables	Total sample (n)	Level of Perception on TB (%)		
		Strong	Moderate	Low
Overall perception	225	19.11	62.67	18.22
Min.= 1.78 Max.= 2.94 Median=2.28 Q.D=0.22 Q1=2.1111 Q3=2.5556				
Perceived susceptibility	225	18.67	72.44	8.89
Min.= 1.67 Max.=3.00 Median=2.20 Q.D=0.25 Q1=2.0000 Q3=2.5000				
Perceived severity	225	0.00	75.11	24.89
Min.= 1.00 Max.= 3.00 Median=2.50 Q.D=0.35 Q1=2.2917 Q3=3.0000				
Perceived benefits	225	19.11	67.11	13.78
Min.= 1.00 Max.= 3.00 Median=2.5 Q.D=0.25 Q1=2.2500 Q3=2.7500				
Perceived barriers	225	21.34	61.33	17.33
Min.=1.00 Max.= 3.00 Median=2.00 Q.D=0.37 Q1=1.5000 Q3=2.2500				

With respect to each item of the perception, Table 10 shows that most of the respondents had always the perception on tuberculosis in the following as 69.78 percent perceived that man and woman equal in getting, 58.48 percent always perceived as persons infected with HIV/AIDS was easily in getting tuberculosis than non-infected HIV persons, 63.51 percent perceived always that irregular or incomplete TB treatment could lead to the serious conditions, 69.78 percent always perceived as early diagnosis and treatment could prevent their family and community, 68.89 percent always perceived that tuberculosis was a dangerous disease that harm their health, 52 percent always perceived that TB patients who still received the tuberculosis treatment could continue working at their working place, 66.52 percent always perceived that complete treatment on tuberculosis could prevent the spread of tuberculosis.

Although more than half of the respondents always perceived in the correct way on most of the items, there was still 26.70 percent, 18.18 percent, 17.78 percent, 61.61 percent, 20 percent, and 18.2 percent still thought respectively TB drug could cause discomfort and side effect, traditional medicine was cheaper and more effective than anti-TB drugs, rich people could not get TB because it is the disease of the poor, TB made person susceptible to other disease, and hard work is a cause of TB disease, worrying too much is cause of disease.

Table 10 The percentage distribution of the respondents about perception on TB by items.

Variables	Total sample	Percentage of perception		
		Agree	Uncertain	Disagree
Perceived susceptibility				
1 Man and woman are equal in getting TB	225	69.78	27.56	2.67
2 Persons infected with HIV/AIDS is easily infected with TB.	224	58.48	37.50	4.02
3 TB is caused by too much worrying to fall out illness.	223	18.20	50.67	30.94
4 TB is caused by hard work.	225	20.00	43.11	36.89
5 Being poor people is at risk of TB	224	23.21	26.34	50.45
6 Rich people can not get TB because it is the disease of the poor.	225	17.78	23.56	58.67
Perceived severity				
7 TB is dangerous can lead to death.	225	68.89	27.11	4.00
8 Irregular and incomplete treatment of TB drugs can make the disease getting worse.	222	63.51	32.43	4.05
9 Delay in treatment can be fatal or disability forever.	225	52.00	39.11	8.89
10 TB made person susceptible to other disease	224	61.61	33.48	4.91

Table 10 The percentage distribution of the respondents about perception on TB by items.(cont.)

Variables	Total sample (n)	Percentage of perception		
		Agree	Uncertain	Disagree
Perceived benefits				
11 Early in diagnose and treatment can make your children and grandchildren free from TB.	225	69.78	28.44	1.78
12 Complete treatment with anti-TB drug can prevent spread TB.	224	66.52	31.70	1.79
13 Having some side effects from anti-TB drugs is tolerate.	224	41.07	53.57	5.36
14 Person with TB who is treated can go back to work normally.	225	52.00	42.67	5.33
Perceived barriers				
15 Most of TB patient can't recover because of poverty and weakness.	222	40.09	25.23	34.68
16 Complete TB treatment takes 6-8 months. is taken very long time.	222	36.94	54.05	9.01
17 Traditional medicine is cheaper and more effective than anti-TB drugs.	220	18.18	52.73	29.09
18 Anti-TB drugs can cause discomfort and side effect.	221	26.70	52.49	20.81

4.4 Accessibility to TB information

To understand about accessibility to TB information 23 items were asked to the respondents. The accessibility to TB information was divided into three parts consisted of social support (significant persons providing the advice/information), contents of advice/ information relating to TB, and the source of information (Mass media). Table 11 shows that among 225 respondents, slightly more than haft of respondents, 54.67 percent declared that they had accessed to TB information, while 45.33 percent could not access to TB information.

Table 11 Frequency distribution of the accessibility to TB information.

Variable	Number	Percent
Accessibility to TB information		
Yes	123	54.67
No	102	45.33

4.4.1 Significant persons

Table 12 displays that the main proportion of the significant persons, 63.41 percent who provided the information on tuberculosis to the respondents was health care workers working in the government hospitals or health centers. About one fourth of the respondents, 26.83 percent, 26.83 percent, 24.39 percent, and 22.76 percent declared that they received TB information from friends, neighbors/relatives, ex-TB patients, and drug seller, respectively. Only about one fifth of the respondents, 19.51 percent, said that they received the information on tuberculosis from village health volunteer (VHV), who played the important role in the primary health care in the community. And 15.45 percent of respondents received information from private doctor.

Table 12 Percentage distribution of the respondents who gained the advice and information from significant persons.

Significant persons providing advice[a]	Number	Percent
1 Village Health Volunteer (VHV)	24	19.51
2 Friends	33	26.83
3 Neighbors/relatives	33	26.83
4 Ex-TB patients	30	24.39
5 Health worker (nurse, MD)	78	63.41
6 Pharmacist/Drug seller	28	22.76
7 Private doctor	19	15.45
8 Other	4	3.25

[a] Multiple responses.

4.4.2 Contents of TB information

Concerning contents of the TB information, seven questions were asked to the respondents relating to cause of tuberculosis, mode of transmission of the disease, sign and symptom of tuberculosis, TB prevention, TB treatment, place for TB diagnosis and treatment, and free of charge for TB diagnosis and treatment. Table 13 shows that more than two third of the respondents, 68.29 percent, received information relating to TB prevention. Slightly more than half of the respondents, 56.10 percent said that they had heard about TB information relating to signs and symptoms of tuberculosis, while 55.28 percent, and 52.03 percent, confirmed that they had heard the TB information on cause of disease, and mode of transmission, respectively. However, only 16.26 percent and 9.76 percent of the respondents said that they had heard respectively about TB information on place of TB diagnosis and treatment, and the free of charge for TB diagnosis and treatment.

Table 13 Percentage distribution of the respondents accessing to the contents of TB information.

Content of TB information[a]	Number	Percent
1 Cause of disease	68	55.28
2 Mode of transmission	64	52.03
3 TB signs and symptoms	69	56.10
4 TB prevention	84	68.29
5 TB treatment	38	30.89
6 Place for TB diagnose and treatment	20	16.26
7 Free of charge for TB diagnose and treatment	12	9.76

[a] Multiple responses.

4.4.3 Mass media

Table 14 Percentage distribution of the respondents accessing to mass media.

Sources of TB information[a]	Number	Percent
1 Television	86	69.92
2 Radio	30	24.39
3 Loudspeaker	15	12.20
4 Newspaper/Magazine	76	61.79
5 Posters	44	35.77
6 Brochure	28	22.76
7 Leaflet	15	12.20
8 Other	6	3.25

[a] Multiple responses.

Regarding mass media, Table 14 shows that about two third of the respondents, 69.92 percent received TB information from watching television, and more than half of the respondents, 61.79 percent had heard TB information from reading the newspapers or magazine. About one third of them, 35.77 percent knew TB information from reading the poster, while nearly one fourth of the respondents, 24.39 percent, and 22.76 percent had heard TB information through radio broadcasting, and brochure, respectively. Only 12.20 percent received TB information from loudspeaker and leaflet.

4.5 Tuberculosis preventive behavior

In order to examine the TB preventive behavior of the respondents, 12 items were asked including 3 negative statements. In this study, TB preventive behavior of the patients was divided into three subscales. The first subscale was health prevention consisted of 5 questions. The second subscale was environmental hygiene posing of 2 questions. The last subscale was healthy life style comprising 5 questions. Mean score was used because few respondents missed to answer a few question. The classification of the TB preventive behavior level of the OPD patients was measured into 3 levels, in which, the "good preventive behavior" was determined as greater than the third quartile, the "moderate preventive behavior" were from the first quartile to the third quartile, and "low preventive behavior" assigned as lower than the first quartile. Quartile was used as the cut of point in this part because the distribution of the data was not normal (p-value <.001). The overall result of the TB preventive behavior was showed in the Table15. It was revealed that slightly more than one fourth of the respondents, 25.78 percent had good preventive behavior, and more than half of them, 54.22 percent had moderate level of preventive behavior. Table 15 also shows each subscale of the TB preventive behavior. Firstly, in the health prevention behavior subscale, there were nearly one fourth of the respondents, 24.89 percent who had good level of preventive behavior, more than half, 57.78 percent with moderate level and less than one fifth of them, 17.33 percent with poor level of preventive behavior. Secondly, in the environmental hygiene subscale, 16.44 percent had good level, 74.67 percent had moderate level, and 8.89 percent had poor level. Finally, for

the healthy life style subscale, 23.56 percent had good level, 55.56 percent had moderate level, and 20.89 percent had low level of TB preventive behavior.

Table 15 Percentage distribution of the respondents about the overall level of TB preventive behavior.

Variables	Total sample (n)	Level of TB preventive behavior (%)		
		Good	Moderate	Low
Overall TB Preventive Behavior	225	25.78	54.22	20.00
Min.= 1.33 Max.= 3.00 Median=2.42 Q.D=0.17 Q1=2.2500 Q3=2.5833				
Health Prevention	225	24.89	57.78	17.33
Min.= 1.20 Max.= 3.00 Median=2.60 Q.D=0.29 Q1=2.2000 Q3=2.7750				
Environmental Hygiene	225	16.44	74.67	8.89
Min.= 1.50 Max.= 3.00 Median=2.00 Q.D=0.25 Q1=2.0000 Q3=2.5000				
Health Life Style	225	23.56	55.56	20.89
Min.= 1.20 Max.= 3.00 Median=2.40 Q.D=0.20 Q1=2.2000 Q3=2.6000				

With regard to each item of the TB preventive behavior, it was seen that there was a large variation according to every items as shown in Table 16. Most of the respondents had always the TB preventive behavior in the positive way, in the following as 73.33 percent said that they always covered their mouth and nose when they coughed, and 70.22 percent declared that they always had a good habit in sleeping. At the same time, about half of them also had the TB preventive behavior in the positive way in the following as 43.24 percent said that they always visited the doctor when they had chronic cough, 56.50 percent declared that they always brought the children to get the BCG vaccination, 64.73 percent told that they always kept the house in a clean condition and with the good ventilation, 46.19 percent said that they had physical examination check up every year,42.67 percent confirmed that they had a balance and adequate for daily nutrition, and 40.54 percent told that they always

provided the suggestion or advice to someone else who had cough to go and consult with the doctor. And 32.29 percent of the respondents had regular exercise.

Although some of the respondents always had a good TB preventive behavior there was still about one fifth of the respondent always had TB preventive behavior in a negative way as the following as 27.56 percent always had split out to the ground when they cough, 22.20 percent said that they always smoke, and 17.78 percent told that they always drank alcohol or beer.

Table 16 Percentage distribution of the respondents about TB preventive behavior by items.

Statements	Total sample (n)	TB preventive behavior (%)		
		Always	Sometimes	Never
Participating in health prevention				
1 You cover your nose and your mouth when you cough or sneeze.	225	73.33	25.78	0.89
2 You will go to see a doctor when you have frequent coughing in the absence of a cold.	222	43.24	45.05	11.71
3 You suggest any persons who had suspected TB symptoms to see health worker for TB examination.	222	40.54	48.20	11.26
4 You take your children in your family to get BCG vaccine.	223	56.50	31.39	12.11
5 You have physical exam every year.	223	46.19	42.15	11.66
Environmental hygiene				
6 You keep you house clean, good ventilation and expose to sunlight.	224	64.73	33.48	1.79
7 You always split out to the ground when you cough.	225	27.56	51.56	20.89

Table 16 Percentage distribution of the respondents about TB preventive behavior by items.(cont.)

Statements	Total sample (n)	TB preventive behavior(%)		
		Always	Sometimes	Never
Healthy life-style				
8 You sleep at least 6 hours per day.	225	70.22	28.89	0.89
9 You exercise at least 3 times per week and 30 minutes at a time.	223	32.29	56.95	10.76
10 Your daily meal keep balance and adequate for nutrition e.g. meat, sugar, oil, vegetable, fruit.	225	42.67	56.00	1.33
11 You smoke cigarette.	225	22.22	15.11	62.67
12 You drink alcohol, beer.	225	17.78	32.44	49.78

4.6 Association between socio-demographic and economic factors and TB preventive behavior

In this part, chi-square and Fishexact was performed in order to find the association of the independent variables and the dependent variable. A p-value of less than 0.05 was considered significant. As shown in Table 17, when the respondents had higher level of education they had better TB preventive behavior. This was proved by there were association between education of the respondents with the TB preventive behavior (p-value = 0.002). Table 17 also shows that when the respondents had better occupation class they had better TB preventive behavior. This was confirmed by there was association between occupation of the respondents and the TB preventive behavior (p-value=0.023). Other variables of the socio-economic factors didn't show any association with the TB preventive behavior.

Table 17 Association between socio-demographic and economic factors and the TB preventive behavior.

General characteristics	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Age					**0.628**
15-22	51	23.53	60.78	15.69	
23-42	120	24.17	55.00	20.83	
43-70	54	31.48	46.30	22.22	
Gender					**0.079**
Male	89	19.10	55.06	25.84	
Female	136	30.15	53.68	16.18	
Education					**0.002**
Primary school	66	12.12	51.52	36.36	
Secondary school	38	21.05	57.89	21.05	
High school	43	30.23	58.14	11.63	
College/vocational	37	35.14	51.35	13.51	
Bachelor degree and higher	41	39.02	53.66	7.32	
Marital status					**0.779**
Single	74	22.97	58.11	18.92	
Married	126	27.78	53.17	19.05	
Widowed /divorced	25	24.00	48.00	28.00	
Occupation					**0.023**
Government official	39	43.59	51.28	5.13	
Street vendor/Private business	55	20.00	52.73	27.27	
Student/housewife	54	29.63	53.70	16.67	
Laborer/farmer/unemployed/other	77	18.18	57.14	24.68	
Average monthly income (Baht)					**0.052**
2,000 – 6,999	51	15.69	60.78	23.53	
7000 – 20,000	122	24.59	55.74	19.67	
20,001 – 85,000	39	43.59	43.59	12.82	

Concerning age of the patients, there was no association between age and TB preventive behavior. However, in Table 17 it was seen that the older age group (43-70) seemed to have TB preventive behavior at good level (31.483%) higher than the younger group 23-42, and 15-22, which had respectively the good TB preventive behavior at 24.17 percent, and 23.53 percent. Even though there was no association between gender and the TB preventive behavior, Table 17 shows that female seemed to be likely to have good TB preventive behavior at 30.15 percent higher than the male who had only 19.10 percent. Concerning the marital status, Table 17 shows that the divorced or separated group seemed to have low TB preventive behavior at 28 percent higher than the single and married group who had only at 18.92 percent and 19.05 percent, respectively. Finally, relating to the family income, it was also found that there was no association between family income and TB preventive behavior. However, the respondents who had the family income more seemed to have good TB preventive behavior at 43.59 percent higher than those who had less family income, 24.59 percent for the family income group 7,000-20,000 Baht, and 15.69 percent for 2,000-6,999 Baht.

4.7 Association between TB knowledge and TB preventive behavior

The TB preventive behavior of OPD patients was determined association with the overall TB knowledge, and two subscales of TB knowledge (cause/TB transmission/prevention, and symptom/diagnosis/treatment). Table 18 shows that TB overall knowledge and TB preventive behavior had significantly association (p-value< .001). The first subscale on cause, transmission and prevention on TB showed that there was no association between the respondents' knowledge of tuberculosis and the TB preventive behavior. However, it was observed that the patients who had the good knowledge had good TB preventive behavior at 46.43 percent higher than those who had the moderate and low level of knowledge, which had good TB preventive at 21.99 percent, and 25 percent, respectively. The second subscale on symptom, diagnosis and treatment were strongly associated with the TB preventive behavior (p-value< 0.005).

Table 18 Association between knowledge about TB and TB preventive behavior.

Level of knowledge	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Overall knowledge					**0.003**
Good	59	44.07	45.76	10.17	
Moderate	114	18.42	56.14	25.44	
Low	52	21.15	59.62	19.23	
Cause,transmission, prevention					**0.069**
Good	28	46.43	46.43	7.14	
Moderate	141	21.99	56.74	21.28	
Low	56	25.00	51.79	23.21	
Symptom,diagnosis, treatment					**<0.001**
Good	33	63.64	30.30	6.06	
Moderate	143	21.68	56.64	21.68	
Low	49	12.24	63.27	24.49	

4.8 Association between perception on tuberculosis and TB Preventive Behavior

It was expected that TB preventive behavior would be positively related to health beliefs. As shown in Table 19, the overall perception on tuberculosis and tuberculosis preventive behavior had a significant relationship (p-value= 0.019). For the OPD patient's perception on susceptibility with the TB preventive behavior, Table 19 shows that the OPD patients had higher perception on susceptibility level had higher preventive behavior on tuberculosis. However, there was no significant association between them. Regarding the OPD patient's perception on severity there was nobody had the good level about perception on severity on tuberculosis. In this case chi-square performed to test association between perceived severity at 2 groups only, that is moderate and low groups with the TB preventive behavior. Concerning

the OPD patient's perception on benefit with the TB preventive behavior was found that the respondents who had the higher level of TB knowledge more understood the benefit about the intervention on TB control. However, there was no significant association between them.

Table 19 Association between perception on tuberculosis and TB preventive behavior.

Level of perception	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Overall perception					**0.019**
Good	43	39.53	41.86	18.60	
Moderate	141	24.11	59.57	16.31	
Low	41	17.07	48.78	34.15	
Perceived susceptibility					**0.384**
Good	42	35.71	42.86	21.43	
Moderate	163	24.54	55.83	19.63	
Low	20	15.00	65.00	20.00	
Perceived severity					**0.054**
Good	0	0.00	0.00	0.00	
Moderate	169	29.59	52.66	17.75	
Low	56	14.29	58.93	26.79	
Perceived benefits					**0.072**
Good	43	34.88	44.19	20.93	
Moderate	151	25.17	58.28	16.56	
Low	31	16.13	48.39	35.48	
Perceived barriers					**0.831**
Good	48	29.17	47.92	22.92	
Moderate	138	26.09	55.07	18.84	
Low	39	20.51	58.97	20.51	

Regarding the OPD patient's perception on barrier and TB preventive was found that the OPD patient who had the higher knowledge had the same perception on barrier as the patient who had the lower knowledge. There was no significant association between them. In conclusion, there was no significant relationship between each subscale of perception and the TB preventive behavior even if the overall perception had highly significant association with the TB preventive behavior.

4.9 Association between accessibility to TB information and the TB preventive behavior

The accessibility to TB information was determine association with the overall TB preventive behavior. Among 225, slightly more than half of respondents (n=123) had heard about TB information. Table 20 shows the association between overall of accessibility to TB information and TB preventive. It was revealed that there was strongly association between accessibility to TB information and TB preventive behavior.

Table 20 Association between accessibility to information about tuberculosis and TB preventive behavior.

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Accessibility to TB information					**0.002**
Accessible to TB information	123	34.96	49.59	15.45	
Not accessible to TB information	102	14.71	59.80	25.49	

4.9.1 Association between social support and TB preventive behavior

As shown in Table 21, the respondents who had received TB information form the public health workers (doctor, nurses) had better TB preventive behavior. It was seen that there was strongly association between health workers with TB preventive behavior (p-value=0.006). Table 21 also showed that the respondents who had got TB information from their friends had better TB preventive behavior. It was confirmed that there was strongly association between friends and TB preventive behavior (p-value=0.029). Other variables of the significant persons didn't have any association with TB preventive behavior.

Table 21 Association between social supports (significant persons who provided TB information/advice) and TB preventive behavior.

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
VHV					**0.344**
Yes	24	29.17	45.83	25.00	
No	99	36.36	50.51	13.13	
Friends					**0.029**
Yes	33	45.45	30.30	24.25	
No	90	31.11	56.67	12.22	
Neighbor/relative					**0.194**
Yes	33	42.42	36.36	21.21	
No	90	32.22	54.44	13.33	
Ex-TB patients					**0.291**
Yes	30	23.33	56.67	20.00	
No	93	38.71	47.31	13.98	
Health worker (Nurse, MD)					**0.006**
Yes	78	39.74	52.56	7.69	
No	45	26.67	44.44	28.89	

Table 21 Association between social supports (significant persons who provided TB information/advice) and TB preventive behavior.(cont.)

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Pharmacist/Drug seller					**0.892**
Yes	28	32.14	53.57	14.29	
No	95	35.79	48.42	15.79	
Private doctor					**0.060**
Yes	19	57.89	36.84	5.26	
No	104	30.77	51.92	17.31	
Other					**0.122***
Yes	4	75.00	25.00**		
No	119	33.61	50.42		

*P-value by Fisher exact test

**Combined moderate and low TB preventive behavior

4.9.2 Association between contents and TB preventive behavior

Table 22 showed that when the respondents received information on cause of tuberculosis, they had better TB preventive behavior. It was seen there was association between cause of disease and TB preventive behavior. At the same time, Table 22 also showed that there were associations between TB prevention, and TB treatment with TB preventive behavior at p=0.028, and 0.046, respectively. The other item of the contents of TB information didn't show any association with TB preventive behavior.

Table 22 Association between contents of TB information and TB preventive behavior.

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Cause of disease					**0.007**
Yes	68	47.06	41.18	11.76	
No	55	20.00	60.00	20.00	
Mode of transmission					**0.105**
Yes	64	34.38	43.75	21.88	
No	59	35.59	55.93	8.47	
TB symptom/sign					**0.710**
Yes	69	37.68	46.38	15.94	
No	54	31.48	53.70	14.81	
TB prevention					**0.028**
Yes	84	38.10	52.38	9.52	
No	39	28.21	43.59	28.21	
TB treatment					**0.046**
Yes	38	47.37	47.37	5.26	
No	85	29.41	50.59	20.00	
Place of TB diagnose and treat					**0.087**
Yes	20	55.00	40.00	5.00	
No	103	31.07	51.46	17.48	
Free of charge for TB diagnose and treatment					**0.738**
Yes	12	41.67	50.00	8.33	
No	111	34.23	49.55	16.22	

4.9.3 Association between the mass media and TB preventive behavior

As shown in Table 23, there were no association between mass media and the TB preventive behavior, except the other item, in which only was 4 cases who said they got the TB information from the billboard. However, mainly parts there were no association between main mass media and TB preventive behavior. Anyway, it was revealed that the respondents who received the TB information from leaflet, radio, TV, newspapers or magazine seemed to have higher level of TB preventive behavior than the others who received the information from others source.

Table 23 Association between mass media and TB preventive behavior.

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Television					**0.771**
Yes	86	36.05	50.00	13.95	
No	37	32.43	48.65	18.92	
Radio					**0.459**
Yes	30	40.00	40.00	20.00	
No	93	33.33	52.69	13.98	
Loudspeaker					**0.903**
Yes	15	40.00	46.67	13.33	
No	108	34.26	50.00	15.74	
Newspaper/Magazine					**0.323**
Yes	76	38.16	50.00	11.84	
No	47	29.79	48.94	21.28	
Posters					**0.911**
Yes	44	36.36	50.00	13.64	
No	79	34.18	49.37	16.46	

Table 23 Association between mass media and TB preventive behavior.(cont.)

Variable	Total sample (n)	TB preventive behavior (%)			Chi-square p-value
		Good	Moderate	Low	
Brochure					**0.892**
Yes	28	32.14	53.57	14.29	
No	95	35.79	48.42	15.79	
Leaflet					**0.715**
Yes	15	40.00	40.00	20.00	
No	108	34.26	50.93	14.81	
Other					**0.014***
Yes	4	100	0.00		
No	119	41.60	77.40**		

*P-value by Fisher exact test

**Combined moderate and low TB preventive behavior

CHAPTER 5
DISCUSSION

This descriptive study was conducted on the patients who were consuming the out patient department service in order to reveal preventive behavior on tuberculosis disease and study the relationship between TB preventive behavior and the socio-demographic and economic factors, knowledge on tuberculosis, perception on tuberculosis, and the accessibility to tuberculosis information.

Even though TB cluster of the Ministry of Public Health, Thailand, could succeed in tuberculosis during last decades, Tuberculosis was still a public health problem in Thailand. Therefore, in 2003, the Ministry of Public Health declared TB to be one of five “priority diseases” (The other priority diseases are HIV/AIDS, malaria, heart diseases, and diarrhea) (9).

5.1 Methodological concerns

This study was conducted in the hospital during office working hours so that the patients might be reluctant to express truly their opinions and feelings towards health services at the OPD clinic because they might be afraid of unfavorable in receiving medical service in the future. The structured questionnaire was designed for self administered in order to minimize any misunderstanding about questions, and missing data. Systematic random sampling had been performed to avoid selection bias. Moreover, the head nurse of OPD observed the flow of the patient and the process of data collection to ensure the quality of the data. However, the data collectors for this study were the health workers, so that the personality and recognition of these data collectors could inevitably influence patients’ answers. Previous TB preventive behavior surveys done by Nam Mai and Tung Minh Duong in Viet Nam were different from this study in terms of the method and different socio-culture, time of study, place of setting, and the determination of TB preventive behavior level. This

difference could lead to the different results between their survey and this survey.

5.2 TB preventive behavior of the OPD patients

In this study, the OPD patients' TB preventive behaviors were described as the patient's practices towards tuberculosis prevention for themselves, for their family, and for their communities. There were three common types of the TB prevention, first general health prevention or precaution, second the environmental hygiene, and third the health life style.

The OPD patients' TB preventive behaviors level was assigned into three levels in which, the frequency distribution of the OPD patients' good TB preventive behaviors level was slightly more than one fourth (25.78%), the OPD patients' moderate TB preventive behaviors level was slightly more than half (54.22%), and the OPD patients' low TB preventive behavior level was one fifth (20%). One possible reason in this study to explain the low percent of good TB preventive behavior was that the respondent's accessibility to information on tuberculosis is low as shown in Table 20. This result of the present study showed that good preventive behavior was lower than the Nam Mai's study (43.8%), and Tung Minh Duong's study (33.7%), which were conducted at the 2 different province in Vietnam in 2002, and 2005, respectively. This is because of the different socio- culture of population and time of study, place of setting, and the determination of the preventive behavior levels.

For the general health prevention of the OPD patients, it revealed that the percentage distribution of "always covering their mouth and nose when coughing" was very high, 73.33 percent. Only less than one percent of frequency distribution, 0.89 percent showed "never covering their mouth and nose when coughing". However, in this case about one fourth of the respondents, that sometime covered or sometimes didn't cover their mouth and nose and nearly 1 percent that did never cover their mouth needed to be considered to provide health education, especially during visiting the hospital.

Concerning the percentage distribution of always and sometimes “consulting with doctor when having frequent cough in the absence of common cold” was high 43.24 percent and 45.05 percent, respectively. However, the percentage distribution of this item showed that still 11.71 percent did not consult with the doctor in case of frequent coughing happened. These were the late cases or considered group that continued to transmit the disease to the community if they had tuberculosis.

Regarding the percentage distribution of always and sometimes “suggesting the TB suspect to visit the health workers” was very high, but it also revealed that 11.1 percent never gave any suggestion to someone who had chronic coughed. This might be they never met TB suspects in the community or less participation in the TB prevention in the community. With respect to the percentage distribution of always and sometimes “taking their children in the family to get BCG vaccination” was high, 56.50 percent and 31.39 percent, respectively. However, there was still 12.11 percent never “taking their children to get BCG vaccination”. This might be they didn’t have any child or not access to the Expended Program Immunization. Relating to the percentage distribution of always and sometimes “annually physical check up” was very high 46.19 percent, and 42.15 percent, respectively. This might be a good TB preventive behavior among the other items of the general health prevention for tuberculosis.

For the environmental hygiene, there were two items considering on this. Regarding the percentage distribution of “always keeping their house clean and with the good ventilation and sunlight” was nearly two third of the respondents, 64.73 percent. Only about 1.79 percent was in low environmental hygiene. Although the first item was very high in the good level, for the percentage distribution of the “always and sometimes splitting out to the ground when they coughed” was 27.56 percent, and 51.56 percent, respectively. These problems might depend on environment at their house so they always or sometimes split out when they coughed. This might be also due to a lot raffle, soil and weed in their surrounding. This might need to be considered on health education especially when they went to the public place or hospital in order to avoid the spread of disease in the hospital. To conclude,

in this environmental hygiene splitting out to the ground should be considered, especially when the patients come to visit the hospital and this needed education more to the patient or to the public.

For the health life style, there were four items to assess this part. Concerning the percentage distribution of “always and sometimes sleeping at least 6 hours” was very high (70.22%), only about 1 percent said that they had the sleeping hours not enough. With respect to the frequency distribution of “always and sometimes did exercise at least 3 times per week and 30 minute at a time” was 32 percent and 56.4 percent. However, there were still 10.6 percent never did exercise. That was might be they were busy in their daily working to earn money or no convenience place for them or their habit. Relating to the frequency distribution of “always and sometimes keeping balance and adequate their nutrition” was high 42.7 percent and 56 percent, respectively. there was only 1.3 percent that didn’t keep their nutrition in balance. Regarding the percentage distribution of “always smoking the cigarette” was more than one fifth (22.2%) and “sometimes smoking” was 15.1 percent. This could show that there were other respiratory disease. Concerning the percentage distribution of “drinking alcohol or beer” nearly one fifth of the respondents said that they always drank alcohol or beer, 32.4 percent sometimes, and half of the respondent didn’t drink alcohol or beer. In conclusion, in this subscale of health life style about one fifth of the OPD patients that they said always tobacco smoking or alcohol intake, these were important in reducing body defences (12).

5.3 Relationship between socio-demographic and economic factors and the TB preventive behavior

Regarding socio-demographic and economic factors, the finding of the study was confirmed that the education level and the occupation of the OPD patients were associated with TB preventive behavior, and the others, there were no association with the TB preventive behavior. The OPD patients who had higher level of education had better level of TB preventive behavior (p-value <0.005). It demonstrates that education level of the OPD patients, which mainly was the determined factors for

their occupation in the society, play an important role together in TB preventive behavior. Even though there was no association in the Tung Minh Duong study, it was found that the OPD patients who had better education were seemed more likely to have better TB preventive behavior.

Concerning the occupation of the OPD patients it revealed that the government officer, the housewife and student group, private business/street vendor group had better TB preventive behavior than the farmer/worker/unemployed/others group. It was obvious that the OPD patients with simple occupation such as the farmer, worker, or unemployed, had less education background. This relationship is confirmed by p-value of 0.023. This might be explained also due to the first three groups not only had higher level of education but also had more responsibility for the family especially the community than the last group. According to Tung Minh Duong study, there was no association between occupation and TB preventive behavior.

Relating to the age of the OPD patients, even though statistics showed that there was not statistically significant association between age and the TB preventive behavior, it was seen that the older group aged 43 to 70 have good TB preventive behavior 31.48 percent higher than the young group as shown in Table 17. This could be explained that old generation might have been hearing more about TB education and had more consciousness about prventive measures for their health than young people. The same pattern in the Tung Minh Duong study, age group of 55 – 70 years old was more likely to perform better preventive behavior than young people. Regarding sex, female who had good knowledge had better TB preventive than the man who had good knowledge. However, there was not statistically significant association between gender and TB preventive behavior. This might because in Thailand man and woman were assigned equally to take responsibility for the family, and the society. According to Tung Minh Duong's study, female who had better TB preventive behavior (44.9%) than male (17.6%) ($p<.001$), and this might be because most of female were assigned to take care everything of their family including health. With respect to the marital status, in spite of there was not statistically significant

association between marital status and TB preventive behavior, the single and married group were more likely to perform better TB preventive behavior at good and moderate level than the divorced or separate group. The reason might be due to the widowed or separated group had more responsibility in term of economic for the children or for the family, and made less care about health.

Relating to the family income, even though there was no relationship between family income and TB preventive behavior, Table 16 showed that the OPD patients who had the high family income was more likely to behave TB preventive behavior better than the lower income family. Average family income of OPD patients could influence to TB preventive behavior in terms of sufficient money to buy some necessary items needed in the family. According to Tung Minh Duong's study, there was association between income and TB preventive behavior at p-value <0.05.

5.4 Relationship between knowledge on tuberculosis and the TB preventive behavior

There was strongly significant association between TB knowledge and TB preventive behavior (p-value = 0.003). This could be explained that having good TB knowledge affected people practicing good TB preventive behavior. It was found that more than one fourth of the OPD patients (26.22%) had good level of tuberculosis knowledge and the same level as the Mai Nam's study about knowledge, attitude of TB (26.0%) (18). However, the level of TB knowledge in this study was lower than those of the Tung Minh Duong's study (57.8%). Anyway there was no association between knowledge and TB preventive shown in Tung Minh Duong's study. This might be due to health workers performed insufficient health education program in community and mass media did not perform regular health promotion program of TB.

5.5 Relationship between perception on tuberculosis and the TB preventive behavior

With respect to the perception level toward tuberculosis, nearly two fifth of the total respondents had good perception. Regarding the association with TB preventive behavior, Table 18 shows that there was significant association between the perception with TB preventive behavior (p-value <0.05). Concerning each item of perception, 20 percent of the respondent perceived that hard work was also a cause of tuberculosis. However, it was less than those of the Tung Minh Duong's study (69.9%). 18.20 percent of the respondent perceived that worry too much was also a cause of tuberculosis. However, it was less than those of the Tung Minh Duong's study (44.6%). 17.78 percent of the respondents perceived that being rich people could not get tuberculosis.

5.6 Relationship between accessibility to TB information and the TB preventive behavior

Slightly more than half of the respondents (54.67%) who had been hearing about TB information from different significant persons, different contents, and different mass media. That could be explained that public mobilization on awareness of tuberculosis was low, as result of reforming the national health system in 2000, which had a detrimental effect on many planned NTP training activities at the provincial and district level, program monitoring and evaluation, as well as case recording and reporting (9). This result also was very low compared to the Nam Mai and Tung Minh Duong's study (94.8%), in which most of the respondents declared they have heard about TB information. Regarding the significant persons who influenced in the TB information as shown in Table 21, there were association between the significant persons from friends and government health service with TB preventive behavior at p=0.029 and p=0.006, respectively. It was found that other significant persons, especially village health volunteer, there was no association with TB preventive behavior. That could be supported by nongovernmental organizations which reported that even community activist "lack academic skills" and knowledge

about TB themselves, and therefore “don’t feel confident” in conducting awareness-raising efforts in their communities. And where communities lack a clear understanding of how TB is spread and treated, stigmatization of persons who have TB and TB/HIV is common. Some TB patients report satisfaction both with services received in community hospitals and with levels of support from family members and neighbors. But fear of stigmatization presents a significant barrier to treatment. Enhanced support for community education and stigma reduction activities could create a more enabling environment for people to access rather than avoid diagnostic and treatment services (9).

Concerning the content of the information on tuberculosis as shown in Table 22 the nearly half of respondents, 47.06 percent who had hearing TB information on cause of disease had better preventive behavior than those, 20 percent who did not access to information with statistically significant association at p-value=0.007. The Table 22 also showed that the OPD patients who received the TB information on prevention and on treatment had better TB preventive than those who did not received about it. This relationship was confirmed by p-value at 0.028, and 0.046, respectively. That could be explained that when the OPD patients understood the cause of the disease, and how to prevent the disease, and where to receive the treatment, all of these lead them to behave themselves in the positive way. Regarding mass media, from which the OPD patients received the information on tuberculosis as shown in the Table 23, there was no any association between mass media and the TB preventive behavior. However, among the OPD patients who received TB information from the mass media, 69.92% of them received from television, and 61.79% received from newspaper or magazine. That could be explained that TB-awareness media campaigns to promote awareness of tuberculosis were limited. And this was supported by civil society perspective on TB Policy in Thailand.

To conclude, this study was only one of general hospital in Kanchanakburi province. Therefore these results could not be represented all patients attending the out patient department in this province.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This cross sectional study was conducted to identify the TB preventive behavior among the patients who attended the out patient department at Paholpolpayuhasana, general Hospital, in Kanchanaburi province. The association of various socio-demographic characteristics (age, gender, education, occupation, marital status, and family income), knowledge about tuberculosis, perception on tuberculosis, with the TB preventive behavior were considered.

As it was mentioned, knowledge was categorized into 2 subscales, first subscale was about cause, mode of transmission, and risk to get tuberculosis, and the second subscale was about signs and symptoms, diagnosis and treatment, and prevention of tuberculosis. About one fifth (23.11%) of the total OPD patients in this study had a low knowledge about tuberculosis.

Regarding the perception on tuberculosis, it was categorized into 4 subscales, perceived susceptibility, perceived severity, perceived benefit, and perceived barriers. Slightly less than one fifth (18.22%) of the total OPD patients in this study was at the low level of the perception on tuberculosis. Since it was looked at each subscale, the perceived severity on tuberculosis at low level was higher at 24.89 percent compared with the other three subscales, perceived susceptibility, perceived benefit, and perceived barrier, at 8.89 percent, 13.78 percent, and 17.33 percent, respectively. This could be the reason for increasing of the morbidity and mortality rate of tuberculosis in the area, when the disease was considered less serious, it would be late in seeking the health care.

The TB preventive behavior, which was categorized into health prevention, environmental hygiene, and health life style, showed that environmental hygiene at low level (8.89%) was lower than the health prevention and health life style subscale, 17.33%, and 20.89%, respective. Looking at the overall of TB preventive behavior it was found that only 25.78 percent of the OPD patients had good TB preventive behavior. This could be the reason for high morbidity rate of tuberculosis in the area.

6.2 Recommendation

6.2.1 Recommendation for the Program implication

This study can be beneficial to the tuberculosis program on TB preventive behavior among the patients who attended the out patient department. Some recommendations concerning relevant objectives of the study were suggested as follows:

Regarding the strong evidence of the association between education level and occupation of the respondent with as shown in Table17, and even though the majorities of the OPD patients in the area had good educational background, the limitation of easily accessible to the information about tuberculosis as shown in Table 11 was low, which only 54.67 percent of the total OPD patients. This could lead the whole community to have less information relating to tuberculosis disease. The recommendation was that pubic awareness of the threat posed by tuberculosis should be considered, as result the delay in diagnosis and treatment of tuberculosis, and the stigma on TB or TB/HIV would be reduced. The hospital should provide information through brochure or posture, or educate the patients to be more awareness of TB using appropriate mass media.

Concerning to the significant persons who had influenced on TB information, Table 21 showed that there was strong association between friends, and public health workers (doctor, nurse) with the TB preventive behavior. This showed that public facilities was still to play the important role in educating, providing the accurate information relating to tuberculosis. However, the closeness to the community people

was friends who also play an important role in TB preventive behavior. This was confirmed by p-value at 0.029. Other closeness to the community people was village health volunteers; they were also the important community activists playing an important role in the primary health care. However, in this study, it was seen that there was no association between VHV and the TB preventive behavior. This VHV group of significant persons should receive more capacity building concerning tuberculosis, especially if the National tuberculosis Program would like to improve the outcome of the TB treatment as well as the early case detection.

6.2.2 Recommendation for future study

With respect to this study, even though it was felt that self-administered questionnaire used in this research was not so sensitive to measure the preventive behavior of the patients in the out patient department, the result can only be limited of use because there is no privacy for filling the questionnaire by the patients. It is recommended to choose an appropriate place for patient to fill in the questionnaire for the future research for a transparent picture of TB preventive behavior. On the other hand, the data collectors in this study was the health workers in the hospital, it could be have any influence on the patients. However, it would be good because it could control the flow of the patients and proper collect back the questionnaires from the respondents. And this make the patients fell free to fill in the questionnaire.

In order to improve the future study, it is recommended that the data collectors should be outsiders from the hospital. And keeping close relationship with the head nurse of the out patient department, especially with the health staffs who work at the clinical history collection desks of the OPD clinic were very crucial point in order to control the flow of the patients. All of these would make the patients feel free in term of time and no reluctance in term of no health worker surrounding them to express their opinions in filling the questionnaires.

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APPENDIX

APPENDIX A

QUESTIONNAIRES

ID. No: .....
Date:...../...../.....

Name of nurse responsible: .....

This questionnaire is prepared to study about the TB preventive behavior and to identify the factors influencing on the TB preventive behavior. The information receiving from you will help improving the TB control in the country. We would very much appreciate your participation in this study. Your response will be kept strictly confidential. Therefore, please feel free to answer the questions. Thank you very much for your kind and truthful answers.

I General characteristics

Instruction: Please fill in the blank or put mark √ in the box [ ] of the most appropriate answer.

1.1 Age.....years

1.2 Gender [ ]1. Male [ ]2. Female

1.3 Education

[ ] 1. No education [ ] 2. Primary school (grade 1-6)

[ ] 3. Secondary school [ ] 4. High school

[ ] 5. College/vocational school [ ] 6. Bachelor degree and higher

[ ] 7. Other, please specify,.....

1.4 Marital status

[ ] 1. Single [ ] 2. Married

[ ] 3. Widowed [ ] 4. Divorced/Separated.

1.5 Occupation

[ ] 1. Laborer/worker [ ] 2. Farmer

[ ] 3. Government official [ ] 4. Street vendor

[ ] 5. Student/Pupil [ ] 6. Housewife

[ ] 7. Unemployed [ ]8. Private business

[ ]9. Other(specify).....

1.6 Average monthly income in family .....THB

1.7 How many members in your family …….. Person

1.8 How many person earn money for family ..... Person

1.9 Personal history of TB [ ]1. Yes [ ]2. No

1.10 Family history of TB [ ]2. Yes [ ]2. No

II Knowledge of tuberculosis

Instruction: Please mark √ in only one of in the box [ ] according your understanding.

No	Statements	True	False	Don't know
	Cause, mode of transmission and risk to get TB			
1	Tuberculosis is an infectious disease caused by germs.	[ ]	[ ]	[ ]
2	Tuberculosis is hereditary disease.	[ ]	[ ]	[ ]
3	TB germs is killed easily by sunlight.	[ ]	[ ]	[ ]
4	Tuberculosis can be transmitted from patient through blood system.	[ ]	[ ]	[ ]
5	Tuberculosis can spread by mosquito bite.	[ ]	[ ]	[ ]
6	TB can be transmitted from patients through respiratory system.	[ ]	[ ]	[ ]
7	TB is spread through eating and drinking.	[ ]	[ ]	[ ]
8	The laboured work can increase the risk to get TB.	[ ]	[ ]	[ ]
9	HIV/AIDS can increase the risk to get TB.	[ ]	[ ]	[ ]
	Signs, symptoms, diagnosis, treatment and prevention			
10	The following are signs and suspected symptoms of TB			
10.1	Coughing longer than 3 weeks is one of signs suspected TB.	[ ]	[ ]	[ ]
10.2	Coughing out bloods is one of symptoms suspected TB.	[ ]	[ ]	[ ]
10.3	Wheezing, remittent dyspnoea is one of symptoms suspected TB.	[ ]	[ ]	[ ]

No	Statements (cont.)	True	False	Don't know
10.4	Anorexia, indistinct fatigue and loss of weight is is one signs suspected TB.	[ ]	[ ]	[ ]
10.5	Indistinct fever and night sweats are symptoms of suspected TB.	[ ]	[ ]	[ ]
11	Sputum examination is positive method to detect lung TB.	[ ]	[ ]	[ ]
12	TB is cured if anti-TB drugs are taken regular and continuously at least for 6 months of treated regimen.	[ ]	[ ]	[ ]
13	The treated case is broken and taken drugs irregular can lead to multi-drug resistant.	[ ]	[ ]	[ ]
14	People do not need to limit contact with lung TB patients when they are taking anti-TB drugs in initial phase of treatment regimen.	[ ]	[ ]	[ ]
15	BCG is vaccine that can prevent children from TB.	[ ]	[ ]	[ ]

III Perception on tuberculosis

Instruction: Please mark √ in the box [ ] according to what you belief.

No	Statements	Agree	Uncertain	Disagree
	Perceived Susceptibility			
1	Man and woman are equal in getting TB	[ ]	[ ]	[ ]
2	Persons infected with HIV/AIDS is easily infected with TB.	[ ]	[ ]	[ ]
3	TB is caused by too much worrying to fall out illness.	[ ]	[ ]	[ ]
4	TB is caused by hard work.	[ ]	[ ]	[ ]
5	Being poor people are at risk of TB	[ ]	[ ]	[ ]
6	Rich people can not get TB because it is the disease of the poor.	[ ]	[ ]	[ ]

No	Statements (cont.)	Agree	Uncertain	Disagree
Perceived Severity				
7	TB is dangerous can lead to death.	[ ]	[ ]	[ ]
8	Irregular and incomplete treatment of anti-TB drugs can make the disease getting worse.	[ ]	[ ]	[ ]
9	Delay in treatment can be fatal or disability forever.	[ ]	[ ]	[ ]
10	TB made person susceptible to other disease.	[ ]	[ ]	[ ]
Perceived Benefits				
11	Early in diagnose and treatment can make your children and grandchildren free from TB.	[ ]	[ ]	[ ]
12	Complete treatment with anti-TB drug can prevent spread TB.	[ ]	[ ]	[ ]
13	Having some side effects from anti-TB drugs is tolerate.	[ ]	[ ]	[ ]
14	Person with TB who is treated can go back to work normally.	[ ]	[ ]	[ ]
Perceived Barriers				
15	Most of TB patient can't recover because of poverty and body weakness.	[ ]	[ ]	[ ]
16	Complete TB treatment takes 8-9 months is taken very long time.	[ ]	[ ]	[ ]
17	Traditional medicine is cheaper and more effective than anti-TB drugs.	[ ]	[ ]	[ ]
18	Anti-TB drugs can cause discomfort and side effect.	[ ]	[ ]	[ ]

IV Accessibility to TB information

Instruction: Please mark √ in the box [ ] that you choose.

1 Have you ever heard about TB information?

[ ] 1 Yes [ ] 2 No. **Please go to next part V**

2 From whom have you heard about TB?

(Please choose more than one if had from anyone)

[ ] 2.1 Village Health Volunteer (VHV)

[ ] 2.2 Friends

[ ] 2.3 Neighbors/relatives

[ ] 2.4 Ex-TB patients

[ ] 2.5 Health worker (nurse, MD)

[ ] 2.6 Pharmacist/Drug seller

[ ] 2.7 Private Doctor

[ ] 2.8 Others (specify):.....

3. What types of information about TB have you ever heard?

[ ] 3.1 Cause of disease.

[ ] 3.2 Mode of transmission.

[ ] 3.3 TB signs and symptoms

[ ] 3.4 TB prevention

[ ] 3.5 TB treatment

[ ] 3.6 Place for TB diagnose and treat

[ ] 3.7 Free of charge for TB diagnose and treatment

4. From where have you received information?

(Please choose more than one if had from any channel)

[ ] 4.1 Television

[ ] 4.2 Radio

[ ] 4.3 Loudspeaker

[ ] 4.4 Newspaper/magazine

[ ] 4.5 Posters

[ ] 4.6 Brochure

[ ] 4.7 Leaflet

[ ] 4.8. Other (specify):.....

V Tuberculosis preventive behavior

Instruction: Please mark √ in the box [ ] according to what you practice.

No	Statements	Always	Sometimes	Never
	Participating in health preventive interventions			
1	You cover your nose and your mouth when you cough or sneeze.	[ ]	[ ]	[ ]
2	You will go to see a doctor when you have frequent coughing in the absence of a cold.	[ ]	[ ]	[ ]
3	You suggest any persons who had suspected TB symptoms to see health workers for TB examination.	[ ]	[ ]	[ ]
4	You take your children in your family to get BCG vaccine.	[ ]	[ ]	[ ]
5	You have physical exam every year.	[ ]	[ ]	[ ]
	Environmental hygiene			
6	You keep you house clean, good ventilation and expose to sunlight.	[ ]	[ ]	[ ]
7	You always split out to the ground when you cough	[ ]	[ ]	[ ]
	Healthy life-style activities			
8	You sleep at least 6 hours per day.	[ ]	[ ]	[ ]
9	You exercise at least 3 times per week and 30 minutes at a time.	[ ]	[ ]	[ ]
10	Your daily meal keep balance and adequate for nutrition e.g. meat, sugar, oil, vegetable, fruit.	[ ]	[ ]	[ ]
11	You smoke cigarette.	[ ]	[ ]	[ ]
12	You drink alcohol, beer.	[ ]	[ ]	[ ]

Thank you for your participation.

แบบสอบถาม
เรื่อง พฤติกรรมการป้องกันโรคของผู้ป่วยแผนกคนไข้นอก
โรงพยาบาลมะการักษ์ จังหวัดกาญจนบุรี

ฉบับที่.....

วันที่.....เดือน.....พ.ศ.....

ชื่อของพยาบาลผู้รับผิดชอบ.....

แบบสอบถามชุดนี้เป็นแบบสอบถามที่จัดทำขึ้นเพื่อศึกษาเรื่องพฤติกรรมการป้องกันโรควัณโรค และเพื่อศึกษา ปัจจัยที่มีอิทธิพลต่อพฤติกรรมการป้องกันโรควัณโรค ข้อมูลที่ได้รับจากท่านจะช่วยในการปรับปรุงการควบคุม โรควัณโรคในประเทศ ข้าพเจ้าขอขอบพระคุณอย่างสูงในความร่วมมือของท่านในครั้งนี้ คำตอบของท่านจะได้รับการเก็บไว้เป็นความลับ ดังนั้น กรุณาแสดงความคิดเห็นของท่านอย่างเต็มที่ ขอขอบพระคุณอีกครั้งใน ความกรุณาและคำตอบที่เป็นความจริงของท่าน

I. ข้อมูลทั่วไป

คำแนะนำ : กรุณาใส่เครื่องหมาย √ ลงในช่องที่ท่านคิดว่าเหมาะสม

1.1 ท่านอายุ.....ปี

1.2 เพศ : ( ) 1. ชาย ( ) 2. หญิง

1.3 จบการศึกษาระดับ:

( ) 1. ไม่ได้เรียนหนังสือ ( ) 2. ชั้นประถมศึกษา (ป.1-ป.6)

( ) 3. ชั้นมัธยมศึกษาตอนต้น ( ) 4. ชั้นมัธยมศึกษาตอนปลาย

( ) 5. วิทยาลัย/ ปวช/ ปวส ( ) 6. ปริญญาตรี หรือสูงกว่า

( ) 7. อื่น ๆ (โปรดระบุ).....

1.4 สถานภาพสมรส:

( ) 1. โสด ( ) 2. สมรส

( ) 3. หม้าย ( ) 4. หย่า/แยกกันอยู่

1.5 อาชีพ:

( ) 1. กรรมกร / รับจ้าง ( ) 2. ชาวไร่/ชาวนา

( ) 3. รับราชการ ( ) 4. ขายของริมถนน

( ) 5. นักเรียน/นักศึกษา ( ) 6. แม่บ้าน

( ) 7. ไม่ได้ทำงาน ( ) 8. ธุรกิจส่วนตัว

( ) 9. อื่น ๆ (โปรดระบุ).....

1.6 ในครอบครัวมีรายได้รวมกัน เฉลี่ยประมาณเดือนละ.....บาท

1.7 ในครอบครัวมีสมาชิกที่อยู่ด้วยกัน กี่คน.....คน

1.8 ผู้ที่ทำงานและมีรายได้กี่คน.....คน

1.9 ประวัติการเป็นวัณโรคของผู้ตอบแบบสอบถาม ( ) 1. เป็น ( ) 2. ไม่เป็น

1.10 ประวัติการเป็นวัณโรคของคนในครอบครัว ( ) 1. มี ( ) 2. ไม่มี

II. ความรู้เรื่องวัณโรค

คำแนะนำ: โปรดใส่เครื่องหมาย √ ลงในช่อง [ ] เพียงช่องเดียวในแต่ละข้อ ตามความคิดเห็นของท่าน

ข้อ	ข้อความ	ถูกต้อง	ผิด	ไม่ทราบ
สาเหตุ ภาวะเสี่ยงในการได้รับเชื้อวัณโรค				
1.	วัณโรคเป็นโรคติดต่อที่เกิดจากเชื้อโรค	[ ]	[ ]	[ ]
2.	วัณโรคเป็นโรคที่เกิดจากกรรมพันธุ์	[ ]	[ ]	[ ]
3.	เชื้อโรคที่เป็นสาเหตุของวัณโรคถูกทำลายได้ง่ายด้วยแสงแดด	[ ]	[ ]	[ ]
4.	วัณโรคสามารถติดต่อได้ทางระบบเลือด	[ ]	[ ]	[ ]
5.	วัณโรคสามารถติดต่อได้ โดยการถูกยุงกัด	[ ]	[ ]	[ ]
6.	วัณโรคสามารถติดต่อได้ทางระบบทางเดินหายใจ	[ ]	[ ]	[ ]
7.	การรับประทานอาหารและดื่มน้ำร่วมกัน เป็นช่องทางในการแพร่กระจายของวัณโรค	[ ]	[ ]	[ ]
8.	การทำงานหนักจะเพิ่มความเสี่ยงที่จะเป็นวัณโรค	[ ]	[ ]	[ ]
9.	คนที่มีเชื้อเอชไอวี/เอดส์จะเพิ่มความเสี่ยงที่จะเป็นวัณโรค	[ ]	[ ]	[ ]
อาการของโรค การวินิจฉัยโรค การรักษา และการป้องกันวัณโรค				
10	ข้อใดต่อไปนี้เป็นอาการหรืออาการต้องสงสัยว่าจะเป็นอาการของวัณโรค คือ			
	(10.1) มีอาการไอนานกว่า 3 สัปดาห์	[ ]	[ ]	[ ]
	(10.2) การไอที่มีเลือดปนออกมา	[ ]	[ ]	[ ]
	(10.3) การหายใจลำบาก ติดขัด มีเสียงดัง	[ ]	[ ]	[ ]
	(10.4) อาการเบื่ออาหาร อ่อนเพลียไม่มีแรง และน้ำหนักลด	[ ]	[ ]	[ ]
	(10.5) อาการมีไข้ขึ้น ๆ ลง ๆ และมีเหงื่อออกในตอนดึก	[ ]	[ ]	[ ]
11	ผลการตรวจเสมหะเป็นบวก เนื่องจากพบเชื้อวัณโรค	[ ]	[ ]	[ ]
12	วัณโรคสามารถรักษาได้หากรับประทานยาสม่ำเสมอและต่อเนื่องอย่างน้อย 6 เดือน	[ ]	[ ]	[ ]
13	ผู้ป่วยวัณโรคซึ่งขาดการรักษาที่ต่อเนื่อง และไม่ได้รับประทานยาอย่างสม่ำเสมอทำให้เกิดการดื้อยาหลายชนิด	[ ]	[ ]	[ ]
14	คนทั่วไปไม่ควรที่จะใกล้ชิดกับผู้ป่วยวัณโรค ถึงแม้ว่าผู้ป่วยรับประทานยาต้านวัณโรคในระยะแรก	[ ]	[ ]	[ ]
15	วัคซีนบีซีจี สามารถป้องกันวัณโรคในเด็กได้	[ ]	[ ]	[ ]

III. การรับรู้เรื่องวัณโรค

คำแนะนำ: โปรดใส่เครื่องหมาย √ ลงในช่อง [ ] เพียงช่องเดียวในแต่ละข้อ ตามความคิดเห็นของท่าน

ข้อ	ข้อความ	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	
การรับรู้โอกาสติดโรค					
1	ผู้ชายและผู้หญิงมีโอกาสเท่ากันที่จะเป็นวัณโรค		[ ]	[ ]	[ ]
2	คนที่ติดเชื้อเอชไอวี/เอดส์ ติดเชื้อโรควัณโรคได้ง่าย	[ ]	[ ]	[ ]	
3	สาเหตุของวัณโรค เกิดจากความวิตกกังวลเรื่องความเจ็บป่วยมากเกินไป	[ ]	[ ]	[ ]	
4	วัณโรคมีสาเหตุจากการทำงานหนัก	[ ]	[ ]	[ ]	
5	ความจน ทำให้เสี่ยงต่อการเป็นวัณโรค	[ ]	[ ]	[ ]	
6	คนร่ำรวยไม่มีโอกาสเป็นวัณโรคได้ เพราะเป็นโรคของคนจน	[ ]	[ ]	[ ]	
การรับรู้ความรุนแรงของโรค					
7	วัณโรคเป็นโรคอันตรายที่สามารถนำไปสู่ความตายได้		[ ]	[ ]	[ ]
8	การได้รับยาต้านวัณโรคที่ไม่สม่ำเสมอ และไม่ครบ ทำให้โรคมีอาการรุนแรงขึ้น		[ ]	[ ]	[ ]
9	การได้รับการรักษาช้า สามารถทำให้ตายหรือพิการตลอดชีวิตได้	[ ]	[ ]		[ ]
10	ถ้าเป็นวัณโรคแล้วจะทำให้คุณเป็นโรคอื่นได้ง่ายขึ้น	[ ]	[ ]	[ ]	
การรับรู้ประโยชน์ที่จะได้					
11	การรักษาวัณโรคโดยเร็วสามารถทำให้ลูกหลานปลอดภัยจากการได้รับเชื้อวัณโรค	[ ]	[ ]	[ ]	
12	การได้รับยาต้านวัณโรคจนครบ สามารถป้องกันการแพร่กระจายของโรคได้	[ ]		[ ]	[ ]
13	ผู้ป่วยสามารถทนต่อผลข้างเคียงหลักของยาต้านวัณโรคได้	[ ]	[ ]	[ ]	
14	คนที่เป็นวัณโรคและได้รับการรักษา เมื่อหายดีก็สามารถกลับไปทำงานได้ปกติ	[ ]	[ ]	[ ]	

ข้อ	ข้อความ	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย		
การรับรู้ด้านลบของการเป็นโรค						
15	คนไข้วัณโรคส่วนใหญ่ไม่สามารถหายได้เพราะความยากจน และความอ่อนแอของร่างกาย		[ ]	[ ]	[ ]	
16	การรักษาวัณโรคที่สมบูรณ์ถูกต้องใช้เวลานานมาก		[ ]	[ ]	[ ]	
17	ยาแผนไทยมีราคาถูกกว่าและมีประสิทธิภาพมากกว่ายาต้านวัณโรค	[ ]	[ ]	[ ]		
18	ยาต้านวัณโรค ทำให้เกิดความไม่สบายและมีผลกระทบ	[ ]	[ ]	[ ]		

IV การเข้าถึงข้อมูลข่าวสารเรื่องวัณโรค

คำแนะนำ: โปรดใส่เครื่องหมาย √ ลงในช่อง [ ] เพียงช่องเดียว ในแต่ละข้อ

1. ท่านเคยได้ยินข้อมูลข่าวสารเกี่ยวกับวัณโรคไหม

[ ] 1. เคย [ ] 2. ไม่เคย (ถ้าตอบข้อนี้ กรุณาข้ามไปตอบคำถามในส่วนที่ V)

2. ท่านได้ยินข้อมูลข่าวสารเกี่ยวกับวัณโรคจากใครบ้าง (ท่านสามารถเลือกคำตอบได้มากกว่า 1 ข้อ)

[ ] 2.1 อาสาสมัครหมู่บ้าน (อสม.)

[ ] 2.2 เพื่อน ๆ

[ ] 2.3 เพื่อนบ้าน/ ญาติ

[ ] 2.4 คนที่เคยเป็นวัณโรคมาก่อน

[ ] 2.5 เจ้าหน้าที่ทางการแพทย์ (เช่น พยาบาล แพทย์)

[ ] 2.6 เภสัชกร/ คนขายยา

[ ] 2.7 แพทย์ที่มีคลินิคส่วนตัว

[ ] 2.8 อื่น ๆ (โปรดระบุ).....

3. ข้อมูลข่าวสารเกี่ยวกับวัณโรคเรื่องอะไรบ้าง ที่ท่านเคยได้ยิน (ท่านสามารถเลือกคำตอบได้มากกว่า 1 ข้อ)

[ ] 3.1 สาเหตุของวัณโรค

[ ] 3.2 การติดต่อของวัณโรค

[ ] 3.3 อาการของผู้ป่วยวัณโรค

[ ] 3.4 วิธีการป้องกันวัณโรค

[ ] 3.5 วิธีการรักษาวัณโรค

[ ] 3.6 สถานที่ที่วินิจฉัยโรค และรักษาวัณโรค

[ ] 3.7 การวินิจฉัยโรค โดยการไม่เสียค่าใช้จ่ายในการรักษา

4. ท่านได้รับข้อมูลข่าวสารจากที่ไหนบ้าง (ท่านสามารถเลือกคำตอบได้มากกว่า 1 ข้อ)

[ ] 4.1 โทรทัศน์

[ ] 4.2 วิทยุ

[ ] 4.3 เสียงตามสาย

[ ] 4.4 หนังสือพิมพ์/ นิตยสาร

[ ] 4.5 ป้ายโฆษณา / โปสเตอร์

[ ] 4.6 ใบโฆษณา/ โบรชัว

[ ] 4.7 ใบปลิว

[ ] 4.8 อื่น ๆ (โปรดระบุ).....

V. พฤติกรรมการป้องกันโรควัณโรค

คำแนะนำ: โปรดใส่เครื่องหมาย √ ลงในช่อง [ ] เพียงช่องเดียว ในแต่ละข้อ ที่ท่านปฏิบัติตัวในการป้องกันโรค

ข้อ	ข้อความ	เป็นประจำ	บางครั้ง	ไม่เคย
	การป้องกันสุขภาพ			
1.	ท่านปิดปากและจมูกเมื่อท่านไอหรือจาม	[ ]	[ ]	[ ]
2.	ท่านจะไปพบแพทย์ เมื่อท่านไอบ่อย ๆ ในช่วงที่อากาศไม่เย็น	[ ]	[ ]	[ ]
3.	คนที่มีอาการน่าสงสัยว่าเป็นวัณโรค ท่านจะแนะนำให้ไปพบเจ้าหน้าที่ทางการแพทย์เพื่อตรวจวินิจฉัยโรค	[ ]	[ ]	[ ]
4.	ท่านจะนำเด็ก ๆ ในครอบครัวของท่านไปรับวัคซีนป้องกันวัณโรค	[ ]	[ ]	[ ]
5.	ท่านตรวจสุขภาพเป็นประจำทุกปี	[ ]	[ ]	[ ]
	อนามัยสิ่งแวดล้อม			
6.	ท่านดูแลรักษาความสะอาดบ้านของท่าน ให้มีอากาศ [ ] ถ่ายเท และมีแสงแดดส่องถึง	[ ]		[ ]
7.	ท่านบ้วนน้ำลายลงพื้นเสมอเมื่อไอ [ ]	[ ]		[ ]
	การดูแลสุขภาพ			
8.	ท่านนอนหลับวันละอย่างน้อย 6 ชั่วโมง	[ ]	[ ]	[ ]
9.	ท่านออกกำลังกายอย่างน้อยสัปดาห์ละ 3 ครั้ง และครั้งละ 30 นาที	[ ]	[ ]	[ ]
10.	ท่านรับประทานอาหารแต่ละวันครบ 5 หมู่และพอเพียง เช่น เนื้อสัตว์, น้ำตาล, น้ำมัน ผัก และผลไม้	[ ]	[ ]	[ ]
11.	ท่านสูบบุหรี่	[ ]	[ ]	[ ]
12.	ท่านดื่มเครื่องดื่มมีแอลกอฮอล์ และเบียร์	[ ]	[ ]	[ ]

0ขอขอบคุณเป็นอย่างยิ่งในความร่วมมือของท่านในการตอบแบบสอบถาม

นายแพทย์อิน โสกันยา จากประเทศกัมพูชา

BIOGRAPHY

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