PERFORMANCE OF VILLAGE HEALTH VOLUNTEERS ON TUBERCULOSIS PREVENTION IN MAHACHANACHAI DISTRICT, YASOTHON PROVINCE, THAILAND

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PRIMARY HEALTH CARE MANAGEMENT FACULTY OF GRADUATE STUDIES MAHIDOL UNIVERSITY 2010

Thesis
entitled

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was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Primary Health Care Management
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ACKNOWLEDGEMENTS

This thesis would not have been possible without the help and support of many people.

I would like to express my sincere gratitude and deepest appreciation to my major advisor, Dr. Jutatip Sillabutra, for her greatest guidance, valuable suggestion, continuous support, supervision, and encouragement throughout my research.

My great appreciation are also extended to Assoc. Prof. Dr. Boonyong Keiwkarnka, my co-advisor for his meaningful suggestions and valuable guidance to complete this research.

My heartfelt thanks to director of ASEAN Institute for Health Development, Dr. Supattra Srivanichakorn, M.D., M.P.H. (Health Development), all lecturers, staffs of MPHM office and ASEAN house.

I would like to thank the village health volunteers and health personnel in health center of Mahachanachai district, Yasothon province for their valuable cooperation in response to questionnaire.

Finally, I would like to give my special thanks to my mother, my wife, my daughter and my son for their loves, their encouragement throughout my study in Mahidol University.

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ABSTRACT

A cross-sectional descriptive study was conducted to study the performance of village health volunteers (VHVs) on TB prevention in Mahachanachai district, Yasothon province, Thailand. The aims of this research were to identify the independent variables: socio-demographic factors, psycho-social factors, and social support and to describe the relationship between independent variables and performance of village health volunteers on TB prevention. There were 315 VHVs in this study and data was collected from January to February, 2010.

The results of this study revealed that slightly over one-half (56.51 %) of VHVs had high performance on TB prevention. More than 85 percent of VHVs performed all kinds of roles related to TB prevention. The role which they performed the most was to advise the group of TB suspected cases about TB examination and send sputum samples to a health center (97.46 %). Slightly over one-half (56.83%) of VHVs had good knowledge while 4.13 percent had poor knowledge; slightly over two-thirds (69.84%) of the VHVs had high perception towards TB prevention. The majority (76.51%) of VHVs had high social support; only 3.81 percent had low social support. Emotional support (83.17%) was relatively better for them. In addition, VHVs received the most support from the family member source regarding TB prevention, while the least support they received came from health center staff source.

Significant associations were found between performance of VHVs and age group, knowledge, and social support including emotional support, informational support, and instrumental support.

The results suggest that the need to enhance VHVs' capacities on TB prevention should be encouraged by providing a regular refresher training course to improve their knowledge about TB prevention, and social support should be strengthened including emotional support, informational support, and instrumental support.

KEY WORDS : PERFORMANCE / VILLAGE HEALTH VOLUNTEERS TUBERCULOSIS / PREVENTION

121 pages.

การปฏิบัติหน้าที่ของอาสาสมัครสาธารณสุขประจำหมู่บ้านเกี่ยวกับการป้องกันวัณโรคในเขตพื้นที่อำเภอมหาชนะชัย จังหวัดยโสธร ประเทศไทย

PERFORMANCE OF VILLAGE HEALTH VOLUNTEERS ON TUBERCULOSIS PREVENTION IN MAHACHANACHAI DISTRICT, YASOTHON PROVINCE, THAILAND

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สม.ม

คณะกรรมการที่ปรึกษาวิทยานิพนธ์: จุฑาธิป ศีลบุตร Ph.D., บุญยง เกี่ยวการค้า Dr.P.H.

บทคัดย่อ

การศึกษาแบบภาคตัดขวาง เพื่อศึกษาการปฏิบัติหน้าที่ของอาสาสมัครสาธารณสุขประจำหมู่บ้าน (อสม.) เกี่ยวกับการป้องกันวัณโรคในเขตพื้นที่อำเภอมหาชนะชัย จังหวัดยโสธร ความมุ่งหมายของงานวิจัยนี้เพื่อบ่งชี้ถึงปัจจัยด้านลักษณะประชากร สังคม และการสนับสนุนทางด้านสังคม รวมทั้งอธิบายถึงความสัมพันธ์ของปัจจัยดังกล่าวกับการปฏิบัติหน้าที่ของ อสม. เกี่ยวกับการป้องกันวัณโรค กลุ่มตัวอย่างในการศึกษาครั้งนี้มีจำนวน 315 คน ได้ทำการเก็บข้อมูลในระหว่างเดือนมกราคม ถึง กุมภาพันธ์ พ.ศ. 2553

ผลการศึกษาพบว่าร้อยละ 56.51 ของ อสม. มีระดับการปฏิบัติหน้าที่ในเรื่องการป้องกันวัณโรคในระดับสูง และมากกว่าร้อยละ 85 ของ อสม.ทำกิจกรรมทุกอย่างที่เกี่ยวกับการป้องกันวัณโรค โดยเฉพาะอย่างยิ่งคือการแนะนำผู้ที่มีอาการสงสัยวัณโรคเข้ารับการตรวจ และส่งเสมหะไปยังสถานีอนามัย อสม.มีระดับความรู้ต่อการป้องกันวัณโรคในระดับดีร้อยละ 56.83 ส่วนในระดับความรู้ต่ำร้อยละ 4.13 ทัศนคติต่อการป้องกันวัณโรคสูงร้อยละ 69.84 และอสม.ได้รับการสนับสนุนทางด้านสังคมมากร้อยละ 76.51 ส่วนในระดับต่ำมีแค่เพียงร้อยละ 3.81 การสนับสนุนทางด้านสังคมในเรื่องของจิตใจนั้น อสม.ได้รับค่อนข้างมากร้อยละ 83.17 นอกจากนี้อสม.ได้รับการสนับสนุนการปฏิบัติหน้าที่ในเรื่องการป้องกันวัณโรคมากที่สุดจากสมาชิกคนในครอบครัวของ อสม. และน้อยที่สุดจากเจ้าหน้าที่ในสถานีอนามัย การศึกษายังพบว่าปัจจัยที่มีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับการปฏิบัติหน้าที่ของ อสม. เกี่ยวกับการป้องกันวัณโรค ได้แก่ กลุ่มอายุ ความรู้ และการสนับสนุนทางด้านสังคม เช่น ด้านจิตใจ ข้อมูลข่าวสาร และวัสดุอุปกรณ์

ผลการศึกษาชี้ให้เห็นว่าควรเพิ่มความสามารถของอสม. ต่อการป้องกันวัณโรคโดยให้มีการจัดฝึกอบรมอย่างสม่ำเสมอเพื่อเพิ่มพูนความรู้ และเพิ่มการสนับสนุนทางด้านสังคมได้แก่ ด้านจิตใจ ข้อมูลข่าวสาร และวัสดุอุปกรณ์ให้กับ อสม.

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LIST OF ABBREVIATIONS

AIDS	:	Acquired Immune Deficiency Syndrome
AFB	:	Acid Fast Bacilli
BCG	:	Bacillus Calmette Guerin
COPD	:	Chronic Obstructive Pulmonary Disease
CHW	:	Community Health Worker
DOTS	:	Directly Observed Treatment Short Course
DM	:	Diabetes Mellitus
EPI	:	Expanded Program on Immunization
EPTB	:	Extrapulmonary Tuberculosis
HIV	:	Human Immuno-Deficiency Virus
HBM	:	Health Belief Model
IEC	:	Information Education Communication
MOPH	:	Ministry of Public Health
MDR	:	Multi-Drug Resistant
NTP	:	National Tuberculosis Control Program
PHC	:	Primary Health Care
PTB	:	Pulmonary Tuberculosis
PSHS	:	People Sector Health System
SCC	:	Short Course Chemotherapy
TAO	:	Tambol Administration Organization
VHG	:	Village Health Guides
VHC	:	Village Health Communicator
VHV	:	Village Health Volunteer
WHO	:	World Health Organization

CHAPTER I
INTRODUCTION

1.1 Rationale and justification of the study

Tuberculosis (TB) is still a major cause of death worldwide, accounting for over a quarter of avoidable deaths among adults. Smear positive pulmonary TB cases play a major role in transmission of this infection (1). Nearly one-thirds of the global population, i.e. about two billion people, is infected with mycobacterium TB and are at risk of developing the disease (2). Globally, there were an estimated 9.27 million cases of TB in 2007. This was an increasing from 9.24 million cases in 2006, 8.3 million cases in 2000, and 6.6 million cases in 1990. Most of the estimated number of cases in 2007 were in Asia (55%) and Africa (33%), with smaller proportions in the eastern mediterranean region (6%), the European region (5%) and the region of the Americas (3%). The five countries that ranked first to fifth in terms of total number of cases in 2007 were India (20 million), China (1.3 million), Indonesia (0.53 million), Nigeria (0.46 million) and South Africa (0.46 million). Of the 9.27 million TB cases in 2007, an estimated 1.37 million (15 %) were HIV-positive; 79 percent of these HIV-positive cases were in Africa region, and 11 percent were in the South-East Asia region (3).

Although the World Health Organization (WHO) declared TB a global emergency in 1993 in recognition of its growing importance as a public health, however, the number of cases is still increasing (2). Therefore, two targets from WHO for TB control were established as part of this solution-detection of 70 percent of new smear-positive cases, and cured of 85 percent of such cases, by the year 2000. In 1994, the internationally recommended control strategy, later named Direct Observed Treatment with Short course (DOTS), was launched (4). Its key components namely: government commitment, case detection by predominantly passive case finding,

standardized short-course chemotherapy to at least all confirmed sputum smear-positive cases, provided under proper case management conditions, a system of regular drug supply, and a monitoring system for program supervision and evaluation. The DOTS framework has subsequently been expanded (5), further clarified, and implemented in 182 countries. DOTS implementation has help countries to improve national TB control programs (NTPs) and make major progress in TB control. By 2004, more than 20 million patients had been treated in DOTS programs worldwide and more than 16 million of them had been cured. Mortality due to TB has been declining and the incidence diminishing or stabilizing in all world regions (6).

Thailand has an estimated 90,000 TB cases, and is ranked 18 on the list of 22 high-burden countries worldwide, according to the WHO report 2008, the rate of TB cases in Thailand is 142 per 100,000 population, the incidence of smear-positive TB is 62 per 100,000 population, and the prevalence of all cases is 192 per 100,000 population. However, the new multi-drug resistant TB (MDR-TB) is 1.7 percent and the previously treated TB cases MDR-TB is 35 percent and DOTS treatment success is only 77 percent (3).

Thailand has a strong political commitment to combat TB as ministry of public health (MOPH) encouraged a strong community partnership, particularly through the village health volunteers (VHVs) network, and the most effective use of health centers and primary care units. Community engagement was considered the best weapon in the fight against TB and can accelerate the well-being of the nation (7). The occurrence of pulmonary TB in Yasothon province was shown that the incidence of this disease gradually increased annually from 2003 to 2008, (44.63, 40.39, 45.63, 48.79, 49.79 and 61.73 /100,000 population respectively), especially in fiscal year of 2009 TB control is considered public health first priority for Thailand to solve in the community by implementing an active case finding TB program, according to TB criteria in the group of chronic diseases, and people who closing contact with the patients or in the same as household. Therefore, VHVs participated in this program by launching TB screening with people in their village, the result found 371 cases of smear-positive pulmonary TB or 68.77 per 100,000 population.

Similarly in Mahachanachai district, TB has been a major health problem for a long period of time, and in 2001 the incidence of smear-positive TB was 143.71 per 100,000 population, even if in 2009 after the TB program was launched (Oct 1, 2008 to Aug 31, 2009), 56 cases were found of smear-positive TB or 96.28 per 100,000 population. In addition, based on TB implementation the result found the incidence greater than the target of public health policy for smear-positive TB of more than 70 per100,000 population, and also found 80 percent of detection rate greater than the target of public health policy for smear-positive TB (detection rate of more than 70 % of existing cases of sputum smear-positive TB) (8).

Since 1978 when the Alma Ata conference reactivated concern for primary health care (PHC), many countries have renewed their interest in the use of selected villagers to provide PHC services to their own communities. The most realistic solution for attaining total population cover with essential health care was to employ community health workers who can be trained in a relatively short time to perform the most important tasks required to respond to people's most pressing health needs (9).

The term 'community health workers (CHWs) started to used in 1980, but in many countries they are still known by other names, for example, in India named 'village health guides' (VHGs), in Indonesia named 'health cadres', in Korea named 'sanitation monitors', and in Thailand CHWs have been called 'village health communicators' (VHCs) and 'village health volunteers' (VHVs) (9). Thailand started PHC activities since 1980 with 14 elements, VHVs carried out several health activities in the past and achieved the targets regarding to health problems in the community through the PHC implementation from the 4th Nation Health Development Plan up to now. Therefore, VHVs were always play an important role involved on achievement of PHC, VHVs also had been strengthened their capacities and completely distribute everywhere of the country. Prevention and control of local endemic diseases is one of the PHC activities run by VHVs, who have served as health agent in villages since 1985. There are 990,842 VHVs working in primary health care centers across the country, under health centers and district health offices (9). These VHVs have been trained in various aspect of health care, especially how to deal with local health

problems. The main activities of VHVs are health programs and service information dissemination, and the establishment of community participation in health problem solving such as the prevention and control of communicable diseases, non communicable diseases and health promotions.

With regard to the current highly TB incidence in Mahachanachai district, Yasothon Province, due to people lack of properly prevention while closing contact with TB patients in communities, lacking of TB examination when coughing more than 2 weeks. In recent years, VHVs performing on TB prevention including disseminating about TB knowledge, advising patients and people to spit properly, advising patients and other people to cover their noses and mouths when coughing or sneezing, launching TB program an active case finding by screening all TB suspected cases in the communities, and advising group of chronic diseases for TB examination. These roles are supposed to bring about positive change in behavior of people to prevent TB as well as provide opportunity for people to have more surveillance about TB prevention in their communities that still found inadequately to meet the need of people (7). Moreover, VHVs in Mahachanachai district also confronted with high workloads, most of them were females and had difference in their education, it probably affected their attitude towards TB prevention, such as feeling likely a chance to get TB, uncomfortable to wake up in early morning to collect sputum for TB examination, even if VHVs received any support from health center staff and local leaders and others. Regarding knowledge on TB prevention, VHVs intended to help villagers for TB prevention, most villagers did not consult them, but went to meet health personnel who had more knowledge, because they were not sure about capability of the VHVs. Therefore, this hard work has become the responsibility of health centers and hospitals, which could not cope with all of TB suspected cases.

Based on the situation, therefore this research focuses on performance of VHVs on TB prevention in Mahachanachai district, Yasothon province, and to identify the association between the knowledge on TB prevention, perception towards performing TB prevention and social support with their performance.

1.2 Research Questions

1.2.1 What is the performance of VHVs on TB prevention in Mahachanachai district, Yasothon province?

1.2.2 What are the factors associated with the performance of VHVs on TB prevention in Mahachanachai district, Yasothon province?

1.3 Research Objectives:

1.3.1 General Objective:

To study the performance of VHVs on TB prevention in Mahachanachai district, Yasothon province, Thailand.

1.3.2 Specific Objectives:

1.To describe the performance of VHVs on TB prevention.

2.To describe the independent variables: socio-demographic factors, psycho-social factors and social support.

3.To identify the relationship between socio-demographic factors, psycho-social factors, social support and performance of VHVs on TB prevention.

1.4 Conceptual Framework

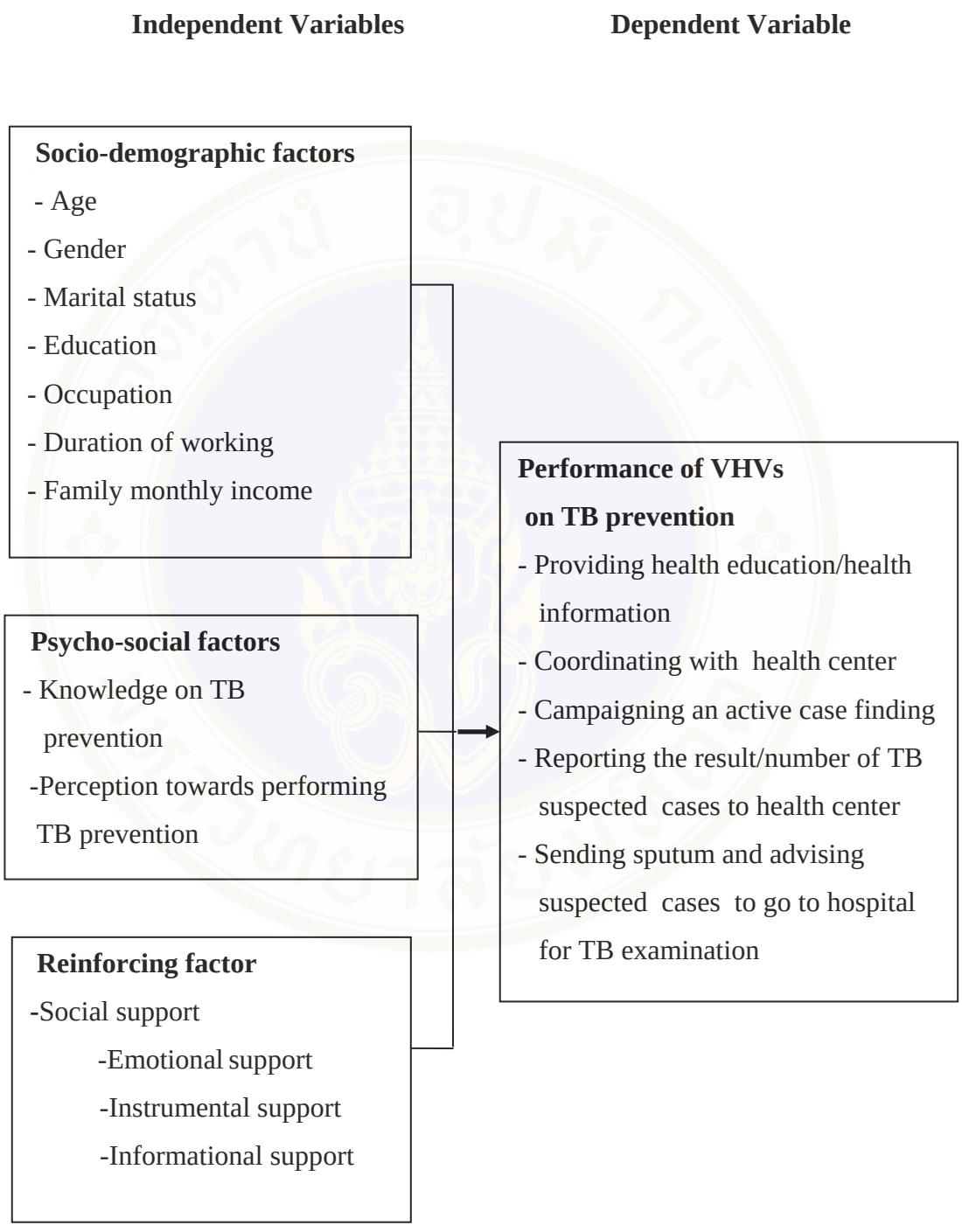

Figure 1.1 Conceptual framework (Based on HBM, PRECEDE-PROCEED model and Social Support Theory)

1.5 Operational definition of study variables

Performance of VHVs: refers to VHVs' performed roles related to TB prevention in their villages. The roles are mainly intended to prevent TB transmission to other people, performing based on primary prevention in community, and to achieve this performance, their roles are defined as follows:

1. Providing health education or health information for villagers as his or her responsible, namely: Advising about environment or sanitation improvement, advising patients and other people to cover their nose and mouths when a coughing or sneezing, advising patients and people to spit properly as well as to dispose of sputum correctly, demonstrating make a sputum collection and wearing masks to patients and others, advising people to keep houses clean, and have good ventilation by opening doors or windows in houses during the daytime.

2. Coordinating with health center staff to support TB prevention activities such as TB campaign signboards, masks, paper for individual TB screening forms, small boxes for sputum collection, mobile broadcasting for TB campaigns, and incentives or rewards for VHVs able to detect TB patients.

3. Launching an active case finding TB program in which VHVs interview or survey to detect TB cases, and screening by using TB screening clinical sign and symptoms form in their communities.(10) as follows:

-Have a chronic cough for more than 2 weeks.
-Have a fever in the afternoon/evening.
-Have sweat more in the night time.
-Have lose of weight within 1-3 months.
-Staying in the same household with a TB patient.
-Have lymphadenopathy in some part of the body.

According to the TB screening form, VHVs have to check the people in every households, if anyone has only 2 out of these 6 signs or symptoms that might be considered a TB suspected cases and need to send their sputum for TB examination. In addition, an active case finding TB program is also carried out with chronic disease groups such as Diabetes Mellitus (DM), Chronic Obstructive Pulmonary Disease

(COPD), Asthma and Silicosis by motivating them to send their sputum samples for TB examination.

4. Reporting the result/number of TB suspected cases to health center staff after launching an active case finding TB program in the community.

5. Sending sputum samples from all suspected cases to a health center and advising them go to hospital for TB examination.

Age: refers to the age of VHVs in years at the time of answering the questionnaire.

Gender: refers to sex of VHVs, as male and female

Education: refers to the level of VHVs' educational obtainment or attainment. This can be categorized into five levels, as primary school, secondary school, vocational institution, bachelor degree or higher, and other.

Marital status: refers to the marriage of VHVs, as single, married, divorced, widowed, separated and other.

Occupation: refers to occupation of VHVs, as farmer, civil servant, laborer, trader, and other.

Duration of working: refers to length of time which VHVs have worked as VHV.

Family monthly income: refers to the total income per month of family members of VHVs earning.

Knowledge on TB prevention: refers to VHVs' knowledge and understanding about TB prevention, including prevention of TB transmission to others, prevention by screening TB suspected cases, prevention regarding people staying in the same house as TB patient.

Perception towards performing TB prevention: refers to VHVs' beliefs or opinions about performing TB prevention in terms of perceived benefits and perceived barriers to TB prevention.

Social support: refers to the assistance and encouragement to VHVs to do their work. It includes support from family members, neighbors, local leaders, health center staff, district health office staff and the VHVs' club (11). It is categorized into three groups as follows:

-Emotional support refers to the provision of empathy, love, trust, and caring that VHVs received from their family members, local leaders, VHVs' club, neighbors and health center staff.

-Informational support refers to the provision of advice, suggestions, and information that VHVs received from VHVs' club, health center staff and district health office staff using on TB prevention or addressing problems.

-Instrumental support refers to the provision of tangible aids and services that directly assist VHVs such as materials, money or incentives from health center staff and the VHVs' club.

1.6 Limitation of Study

1.6.1 This study was a cross-sectional descriptive study of VHVs who were working in Mahachanachai district, Yasothon province. It cannot be generalized to represent the whole country due to small sample size.

1.6.2 Data collection by using a structured self-administered questionnaire may not be obtained a good quality of answers due to could not control who answer the questions.

CHAPTER II
LITERATURE REVIEW

This research focuses on the performance of VHVs on TB prevention in Mahachanachai district, Yasothon province. The researcher reviewed the theory, concept and relevant literature as follows:

2.1 Tuberculosis disease
2.2 Tuberculosis prevention
2.3 Situation of TB in Thailand and Yasothon province
2.4 Primary health care in Thailand
2.5 Village health volunteers
2.6 Performance of VHVs on tuberculosis prevention
2.7 Theoretical model
2.8 Related to study

2.1 Tuberculosis disease

2.1.1 Cause, mode of transmission and pathogenesis

TB 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 a microscope, the bacilli look red, 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.

The most important source of infection is patients with TB of the lung, or pulmonary TB (PTB), and who are coughing. These patients are usually sputum smear

-positive. Coughing produces tiny infectious droplet nuclei. A single cough can produce 3,000 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 along period. 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 defence of the bronchi and penetrate into the terminal alveoli of the lungs, where multiplication and infection begin (9).

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 defence 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 lympnodes. 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 hypersentivity and cellular immunity) develops about 4-6 weeks after the primary infection. The size of infecting dose of bacilli and the strength of the immune response determine what happens next. In the most cases, the immune response stops the multiplication of bacilli. However, a few domant 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 (9).

Post-primary TB occurs after a latent period of months or years following primary infection. It may occur either by reactivation of the domant tubercle bacilli acquired from a primary infection or by reinfection. Reactivation means that domant bacilli persisting in tissues of months or year 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 intrathoractic lymphadenopathy. Patients with lesions are the main transmitters of infection in the community (9).

2.1.2 Signs and symptoms of pulmonary TB

Patients with active PTB 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 person were deemed 'good chronic' in the pre-chemotherapy era (12). The most important symptoms of PTB 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 2.1

Table 2.1 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 percent of patients with sputum smear-positive PTB develop a cough soon after disease onset. However, a cough is not specific to PTB. Coughing is common in smokers and in patients with acute upper or lower respiratory tract infections. 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 should submit sputum samples for diagnostic microscopy (9). Extra-pulmonary TB (EPTB) can occur at any age. Young children and HIV-positive adults are particularly susceptible. Up to 25 percent of TB cases may present with EPTB. Children of less than 2 years of age

are at risk of disseminated disease causing military TB or TB meningitis. The common forms of extra pulmonary TB associated with HIV are the following: lymphadenopathy, pleral effusion, pericardial disease, military TB, and meningitis. Many patients with extra-pulmonary TB also have coexistent pulmonary TB (9).

2.1.3 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 should submit sputum for diagnostic sputum smear microscopy. Most cases of PTB are diagnosed as the result of the patient feeling unwell and coming for a health check to a health center, clinic, hospital, or private doctor (13).

2.1.3.1 Physical examination

Physical examination did not help much. However, a physical examination done carefully the patient may yield useful signs (13). The general condition is sometimes 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 only be slight rise of temperature in the evening, often there is no fever. The 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. The chest often there no abnormal signs, although the commonest is find crepitations (crackles) in the upper part of one or both lungs. These are heard particularly on taking a deep breath after coughing.

2.1.3.2 Sputum examination by microscope

The most reliable way of making a diagnosis is to find TB in a direct of smear sputum. Try to have three specimens examined. If only one is positive and others negative, it is best to confirm with a further positive (because errors, clerical or other, can occur) (13).

2.1.3.3 Chest X-Ray

TB is difficult to diagnose with certainty by x-ray alone and should not be treated without having examined the sputum. X-rays are expensive and unreliable, other diseases often look very similar (11). 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. In severe immunocompromise, the appearance is often a typical (9).

2.1.3.4 Tuberculin skin test

A 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 TB, it can be weak or negative even when the patient (adult or child) has active TB, so that a negative tuberculin test does not exclude TB (13).

2.1.4 Tuberculosis treatment

It has been known for over 100 years that mycobacterium tuberculosis causes TB and effective anti-TB drugs have also been 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 (9). Patient adherence to treatment is necessary to ensure that the treatment cures the patient. Patient adherence to SCC means patients should take every dose of the recommended treatment regimen. It may be difficult for a patient to adhere to anti-TB treatment for 6-8 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 (9). The aims of TB treatment are to cure the patient of TB; to prevent death from active TB or its late effects; to prevent a 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 semi-dormant 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. The standard code for short-course regimen has been revised to be in line with WHO as follows: (14)

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

2.2 Tuberculosis prevention

TB prevention may include the general heath 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 (13). Bacilli Calmette-Guerin (BCG) vaccination for children at birth. The route of injection is intradermal. In countries with high TB prevalence, WHO has 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. BCG has little or no effect in reducing the number of adult cases of PTB (9). Early diagnosis and treatment of 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 the tropics (13). Environmental hygiene aims 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 improving ventilation of houses, and helping everyone to think of spitting as a nasty and unacceptable habit, can help to reduce the transmission of TB.

2.3 Situation of TB in Thailand and Yasothon province

Thailand is ranked 18 on the list of 22 high-burden countries worldwide, according to the WHO report 2008, the rate of TB cases in Thailand is 142 per 100,000 population, the incidence of smear-positive TB is 62 per 100,000 population, and the prevalence of all cases is 192 per 100,000 population. (3).

Table 2.2 Estimated Epidemiological of TB, 2007

Countries	Incidence			
	All forms		Smear-positive	
	Number 1000s	Per 100,000 pop/year	Number 1000s	Per 100,000 pop/year
1.India	1,933	168	867	75
2.China	1,311	99	590	45
3.Indonesia	534	123	240	105
4.South Africa	454	940	184	382
5.Nigeria	450	311	198	137
6.Bangladesh	351	225	158	101
7.Ehiopia	306	378	136	168
8.Pakistan	292	181	131	82
9.Philippines	248	287	111	129
10.DR Congo	237	392	105	173
11.Russia	153	107	68	48
12.Vietnam	149	173	66	77
13.Kenya	141	384	56	153
14.Tanzania	123	312	53	135
15.Uganda	106	355	46	154
16.Brazil	94	50	59	31
17.Mozambique	93	443	39	189
18.Thailand	**90**	**142**	**40**	**62**
19.Myanmar	83	171	37	76
20.Zimbabwe	74	557	30	227
21.Cambodia	71	500	31	220
22.Afhanistan	42	161	19	73

Source: Global tuberculosis WHO report 2008

Since Thailand has an estimated 90,000 TB cases, according to the WHO report 2008. Of this number, 40,000 cases are smear-positive TB in the contagious

phase (3). The country also sees 5,000 to 7,000 deaths from TB each year. Most victims are working people between 15 and 44, there are 58,639 TB patients registered nationwide but the rate of complete cures is still low at only 75 percent, below the WHO standard of 85 percent. This is partially because the patients do not take medicine continuously and so remain contagious (15). Permanent secretary of public health Dr. Prat Boonyawongvirot has said Thailand has a re-emergence of TB because the AIDS outbreak has increased the number of people suffering from TB (10).

The occurrence of pulmonary TB in Yasothon province was shown that the incidence of this disease gradually increased annually from 2003 to 2008, (44.63, 40.39, 45.63, 48.79, 49.79 and 61.73 /100,000 population respectively), especially in fiscal year of 2009 TB control is considered public health first priority for Thailand to solve in the community by implementing an active case finding TB program, according to TB criteria in the group of chronic diseases, and people who closing contact with the patients or in the same as household. Therefore, VHVs participated in this program by launching TB screening with people in their village, the result found 371 cases of smear-positive pulmonary TB or 68.77 per 100,000 population as Figure 2.1

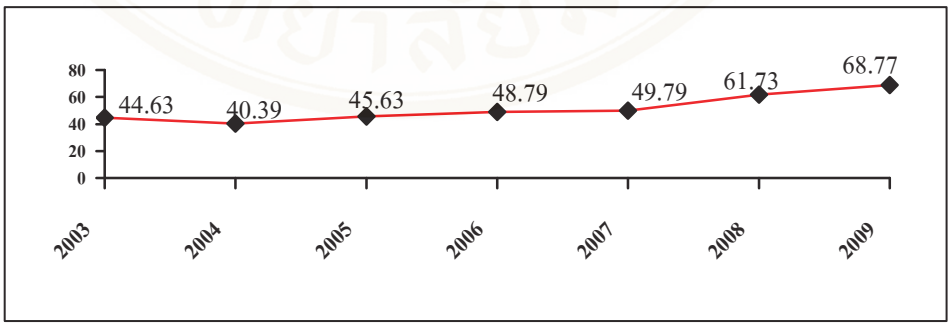

Figure 2.1 The incidence of new smear-positive TB cases per 100,000 population in Yasothon province, Thailand 2003 to 2009.

Source: Yasothon provincial health office, Yasothon province, Thailand (Accessed on September 3, 2009) (8).

The situation in Mahachanachai district, TB has been a major health problem for a long period of time, and in 2001 the highest incidence of smear-positive TB was 143.71 per 100,000 population, even in 2009 after the program was launched (Oct 1, 2008 to Aug 31, 2009) 56 cases were found of smear-positive TB or 96.28 per 100,000 population. In addition, based on TB implementation the result also found the incidence greater than the target of public health policy for smear-positive TB of more than 70 per100,000 population as Figure 2.2

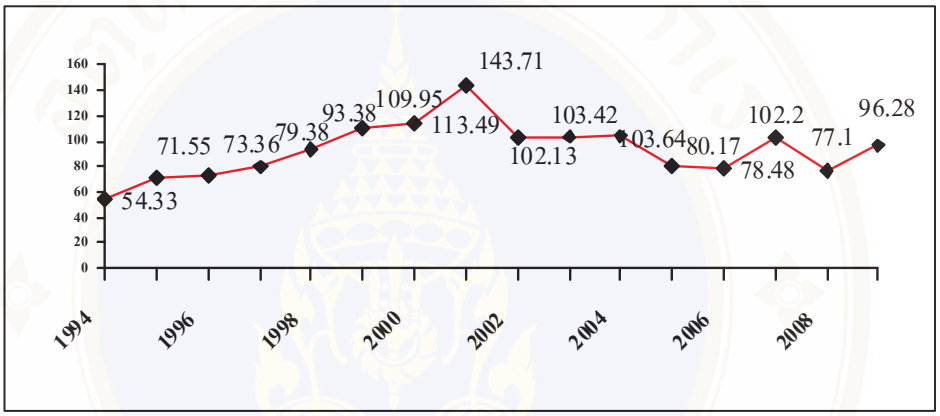

Figure 2.2 The incidence of new smear-positive TB cases per 100,000 population in Mahachanachai district, Yasothon province, Thailand 1994 to 2009

Source: Mahachanachai district health office, Yasothon province, Thailand (Accessed on September 3, 2009) (8).

In 2009, MOPH declared TB the first priority for implementation (10). Mahachanachai district launched an active case finding TB program in every households according to TB criteria, especially the group of chronic disease, people who closing contact with patients or in the same household. Health personnel and VHVs played an important role in screening the suspected cases in the area. The program started from October 1, 2008 to September 30, 2009. The result found 80 percent of detection rate greater than the target of public health policy for smear-positive TB (detection rate of more than 70 % of existing cases of sputum smear-positive TB) as shown in Table 2.3

Table 2.3 Number of New Smear-Positive TB Cases Registered in Mahachanachai Hospital in 2009

No.	Oct 08	No 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	Ma 09	Jun 09	Jul 09	Au 09	Sep 09	Total
Target	4	4	3	4	4	3	4	4	3	4	4	3	44
Out come	3	7	11	4	2	9	5	4	3	4	4	-	56

Source: Mahachanachai hospital, Yasothon province, Thailand (Accessed September 3, 2009) (8).

2.4 Primary Health Care in Thailand

The 14 elements of primary health care were basic health services at the village level. The major concepts of primary health care approach consisted of 4 items as follows: (16).

Community participation; in order to carry out primary health care activities, community participation was the most important element. It is impossible to expect successful health programs to improve public hygiene and health without active participation from community, as is difficult to perform medical treatment without a patient's cooperation.

Reoriented basic health service; since most health development starts from the family, community and until people are able to manage by their own in terms of solving health problems in primary health care level. Therefore, all health facilities would be reoriented the basic health service in order to have more compatibility to each other such as referral system, home health care etc.

Appropriate technology; refers to the kind of technology that is economically affordable, socially and culturally acceptable to the community, as well

as the concept of appropriate technology would help to release developing counties out of the vicious circle and would lead to the country/community's self reliance.

Intersectoral collaboration; a health and disease result from multiple factors, it is necessary to involve not only the health sectors, but also other sectors to promote health development. The PHC approaches and primary health care elements was an ideological framework. The major activities had been carried out in the community level, included training of VHVs by receiving 3-5 days for training programs on the basic health. For instance in the year of 2009 setting up training program regarding to TB, Breast feeding, Global warming and Strategy route map.

2.5 Village health volunteers

The VHVs worked as health communicators between the village and health personnel in health center and promote health development activities in the community. In every village, primary health care centers were established, thousands of primary health care centers were owned and operated by people in the community. These were the centers for VHVs and for PHC activities at the village level including, for simple treatment, children weighing, TB screening, DM screening as well as meeting. Since the 4th National Health Plan (1997 to 1981) in Thailand, continuously implemented PHC activities according to policy, implementation plan, budgets allocation. Recently, most of the VHVs were a valuable support to health care, health promotion that they were responsible for the 14 elements of primary health care as follows: (16).

1. Health education
2. Nutrition
3. Maternal and child health care including Family planning
4. Safe water supply and sanitation
5. Immunization
6. Prevention and control of locally endemic disease
7. Treatment of common disease and injuries

8. Essential drug
9. Mental health
10. Dental health
11. AIDS control
12. Consumer protection
13. Environmental control
14. Injury prevention

Responsibilities of VHVs

1. To inform the villagers in his/her responsible area about information related to health.

2. To collect information from public regarding to health such as births, deaths, migration, pregnancies, risk group etc.

3. To disseminate knowledge, advise and motivate the public in the 14 essential elements of primary health care.

4. To carry out and coordinate health development activities and jointly with other intersectoral development activities.

5. To surveillance nutrition of children under 72 months and distribute supplementary food for malnutrition children.

6. To provide simple symptomatic medical care by using home remedies or other medicines which the ministry of public health permission to use.

7. To provide first treatment for mild wound, dry dressing etc.

8. To service family planning by provide contraceptive pill, condom, in the circumstances permission from health personnel (17).

2.6 Performance of VHVs on Tuberculosis prevention

The overall objective of TB prevention is to reduce the prevalence of tuberculosis in the community as quickly as possible to a level where it ceases to be a public health problem. To achieve this, the national TB control program has the following objectives:

-Prevent the development of drug resistance.

-Reduce mortality, morbidity and disease transmission.

2.6.1 Targets for TB prevention

Cure rate of more than 85 percent of detected new cases of smear-positive TB. Detection rate of more than 70 percent of existing cases of sputum smear-positive TB. The emphasis is on curing as many patients as possible in order to reduce the transmission of infection. Therefore, it is important to expand case finding in the community (18).

2.6.2 Role of VHVs on TB prevention

The best way to prevent TB is to ensure that all sputum smear-positive TB cases will be cured. However, there are three general prevention measures that VHVs should more perform in order to reduce the transmission of infection. The most important as below:

1. Providing health education/health information regarding TB prevention for villagers as his or her responsible, namely:

-Advising about environment or sanitation improvement

-Advising patients and other people to cover their nose and mouths when a coughing or sneezing.

-Advising patients and people to spit properly as well as to dispose of sputum correctly.

-Demonstrating make a sputum collection and wearing masks to patients and others.

-Advising people to keep houses clean, have good ventilation by opening doors/windows in houses during the daytime.

2. Launching an active case finding TB program in which VHVs interview or survey to detect TB cases, and screening by using TB screening clinical sign and symptoms form in their communities.(10) as follows:

-Have a chronic cough for more than 2 weeks.

-Have a fever in the afternoon/evening.

-Have sweat more in the night time.

-Have lose of weight within 1-3 months.
-Staying in the same household with a TB patient.
-Have lymphadenopathy in some part of the body.

According to the TB screening form, VHVs have to check the people in every households, if anyone has only 2 out of these 6 signs or symptoms that might be considered a TB suspected cases and need to send their sputum for TB examination. In addition, an active case finding TB program is also carried out with chronic disease groups such as Diabetes Mellitus (DM), Chronic Obstructive Pulmonary Disease (COPD), Asthma and Silicosis by motivating them to send their sputum samples for TB examination.

3. Sending sputum samples from all suspected cases to a health center and advising them go to hospital for TB examination.

2.7 Theoretical Model

2.7.1 The Health Belief 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 belief of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in U.S. public health services. The model was developed in response to the failure of a free tuberculosis 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 benefit: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. These concepts are proposed as accounting for people's "readiness to act". An added concept, cue 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 HBM better

fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating (19). Marshall H. Becker (1974) developed the concepts of the HBM by expanding upon the woks 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 a willingness to participate in health interventions and a belief that being healthy is a highly valued outcome. Therefore, it is possible to predict whether an individual will engage in positive health behaviors by that individual's perception of the disease, illness or accident, identification of modifying factors, and the likelihood that the individual will take some action. Becker's model can be found in Figure 2.3 (20).

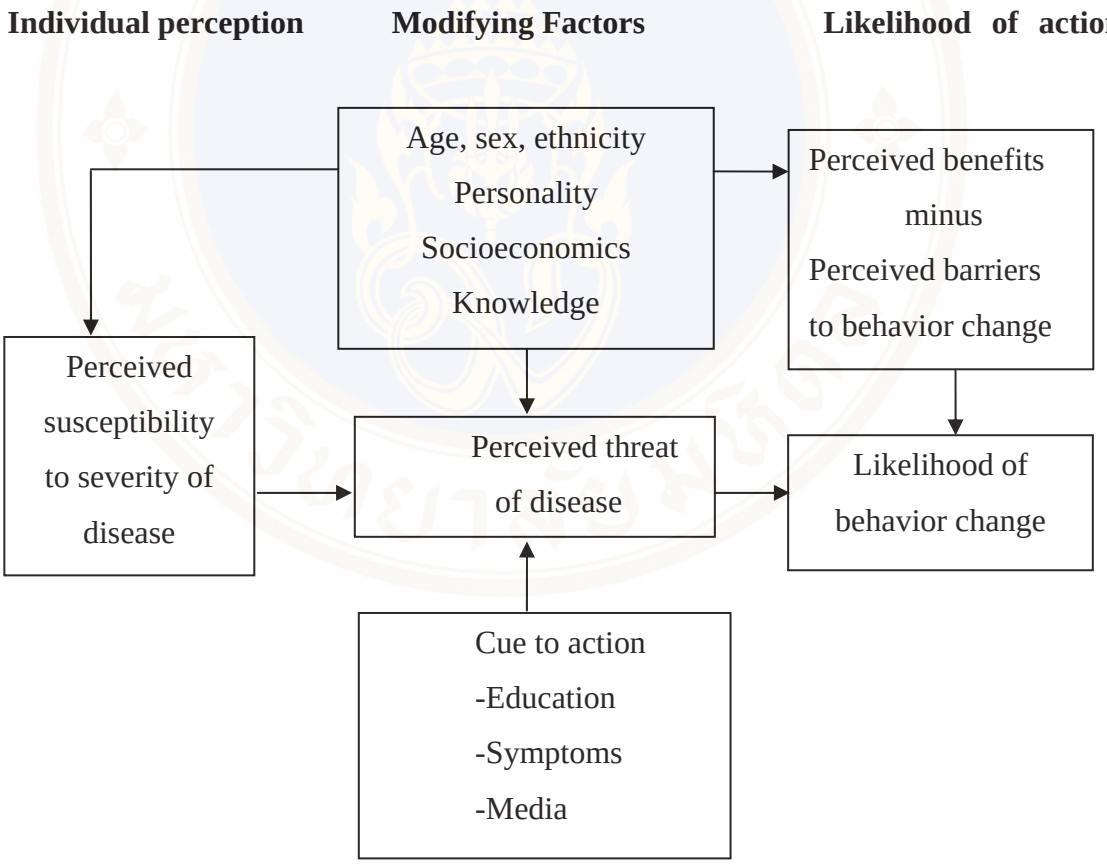

Figure 2.3 The Health Belief Model Modify by Becker

Health Belief Model has six components as follows:

1. Perceived susceptibility: 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. Perceived severity: refers to feeling 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 conditions on work, family life and social relation) that have come to label the combination of susceptibility and severity as perceived threat.

3. Perceived benefits: refers to the acceptance of personal susceptibility to a condition also believed to be serious (perceived threat) produces a force leading to behaviors, the particular course of action that may 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 recommended health action unless that action is perceived as potentially efficacious.

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

5. Cue to action: refers to the events to activate one's advised actions. It is applied to provide how-to information, to promote awareness, and to employ reminder systems.

6. Self-efficacy: refers to the conviction that one can successfully execute the behavior required to produce the outcomes. It is applied to provide training and guidance in performing the advised action, to use progressive goal setting, to give

verbal reinforcement, to demonstrate desired behaviors and to reduce anxiety. It is a separate construct added to original Health Belief Model (20).

2.7.2 PRECEDE-PROCEED model

The PRECEDE-PROCEED model was designed by Lawrence Green and Marshall Kreuter to provide a comprehensive structure for assessing health and guality of life needs, and designing, implementing, and evaluating health education and health promotion programs. PRECEDE stands for *P*redisposing, *R*einforcing, and *E*nabling *C*onstructs in *E*ducational *D*iagnosis and *E*valuation, which is meant to outline a diagnostic planning process. PROCEED stands for *P*olicy, *R*egulatory, and *O*rganizational *C*onstructs in *E*ducational and *E*nvironmental *D*evelopment, which is meant to guide the implementation and evaluation of planned according to the PRECEDE process. Therefore, PRECEDE and PROCEED function in a continuous cycle (21).

PRECEDE has five phases which are diagnostic.

1. Social diagnosis: to determine people's perceptions of their own needs and quality of life in order to understand the target community by conducting multiple data collecting activities.

2. Epidemiological diagnosis: to determine which health problems are most important for the target group by conducting secondary data analysis.

3. Behavioral and environmental diagnosis: to assess factors that contribute to health problem under consideration, including behavioral factors related to behaviors or lifestyles of the individuals at risk, and environment factors which are external to the individuals often beyond their control.

4. Educational and organizational diagnosis: to identify the antecedent and reinforcing factors that must be in place to initiate and sustain the behavioral and environmental change process.

5. Administrative and policy diagnosis: to identify policies, resources, and circumstances prevailing in the organizational context that could facilitate or hinder the program implementation.

PROCEED has four phases including implementation and evaluation.

6. Implementation: to implement the health promoting program

7. Process evaluation: to determine the extent to which the program was implemented according to protocol.

8. Impact evaluation: to assess change in predisposing, reinforcing and enabling factors, as well as in the behavioral and environmental factors.

9. Outcome evaluation: to determine the effect of the program on health and quality of life indicators.

Figure 2.4 shows the overall process of PRECEDE and PROCEED model. From the view of PROCEED, phase six implementation shows a health promotion program. Phase seven process evaluation shows predisposing, reinforcing and enabling factors which influence behavior and lifestyle shown in phase eight impact evaluation. This behavior and lifestyle, as well as environment, lead to health, and all contributes to quality of life in phase nine outcome evaluation. Performance of VHVs would be regarded the same as behavior and lifestyle. Therefore, to determine the factors related to performance of VHVs, the PRECEDE-PROCEED model was used in this research.

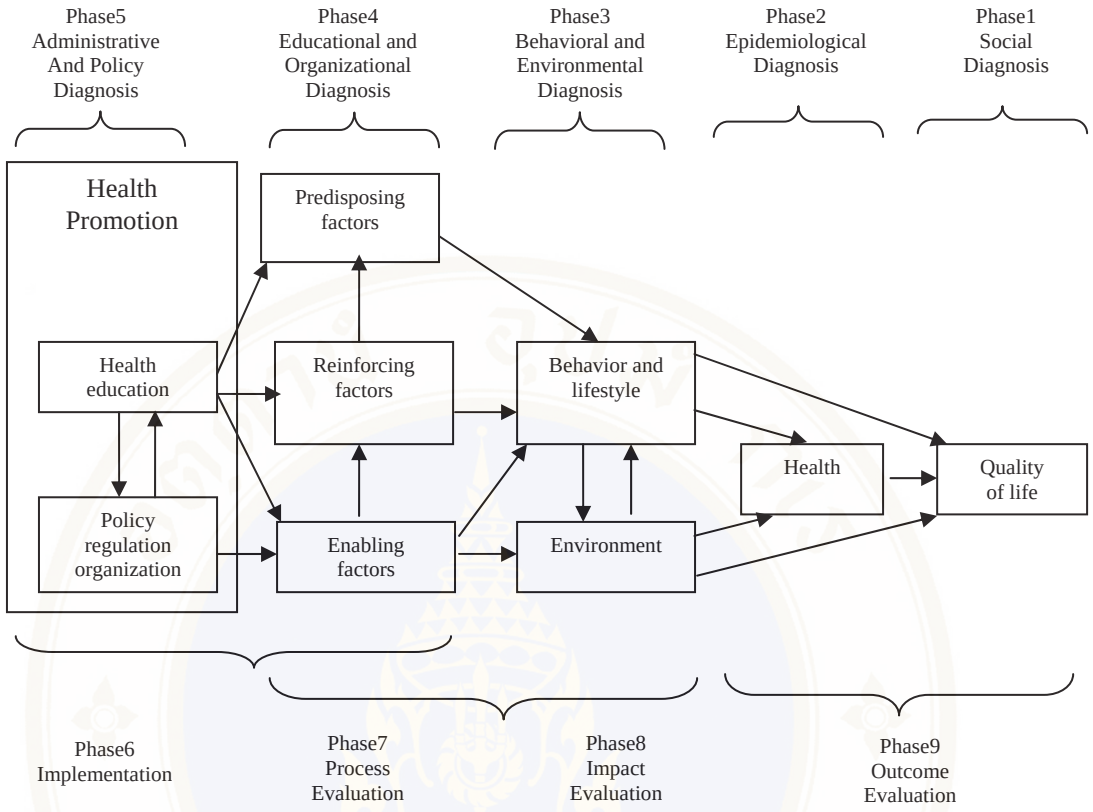

Figure 2.4 The process of PRECEDE and PROCEED

Predisposing factors: antecedents to the particular behavior by providing rationale or motivation for people to undertake the behavior, including knowledge, attitude, beliefs, personal preference, existing skills and self-efficacy beliefs.

Enabling factors: antecedents to the behavior making it possible for a motivation to be realized, that is, affecting behavior directly or indirectly through an environmental factor, including available resources, supportive policies, assistance and services.

Reinforcing factors: following the behavior, providing continuing rewards or incentives for repetition or persistence of the behavior, including social support, praise, reassurance, symptom relief, peer influence and vicarious reinforcement.

2.7.3 Social Support Theory

Social support as a determinant of health are believed to have a positive impact on health outcomes, and provide a sense of well being, serve as a source of information, acting as a form of coping enhance self-esteem, or providing access to material needs. In addition, social support is the functional content of relationships and always intended to be helpful, thus distinguishing it from intentional negative interactions. Social support can be categorized into the four types of supportive behaviors or acts namely: emotional support, instrumental support, informational support, and appraisal support (11).

Emotional support: means the support provided by expressions of love empathy, closeness, reliability, trust, respect, praise and care.

Instrumental support: means the support by providing tangible aid and services that directly assist people in deed.

Information support: includes giving information, suggestions and advice which would help people to understand how a thing happens, or to address problems.

Appraisal support means the provision of information which is useful for self evaluation such as constructive feedback, affirmation and social comparison (22).

In conclusion, the conceptual framework is constructed based on Health Belief Model, including knowledge, perceived benefits, and perceived barriers are included into psycho-social factors. PRECEDE-PROCEED model was applied to explain the social support regarding TB prevention as reinforcing factor, and the terms of components of social support is categorized into three broad types namely: emotional support, instrumental support and informational support based on Social Support Theory.

2.8 Related to study

2.8.1 VHVs' performance

Although, several research have been done on the knowledge, attitude and practice of VHVs in different areas of primary health care, however it is necessary to study more due to many health programs in terms of 14 essential elements of PHC still needed to be implemented in order to overcome health problems in the community. Therefore, the performance of VHVs could be defined as the total behavior of health workers, the whole range of knowledge, skill, and attitude acquired through training their organization and integration in practice (23). In Thailand, many researchers measured the ability of VHVs and identified some aspect of VHVs influencing their performance, as well as also classified level of VHVs' performance as shown in Table 2.4

Table 2.4 Summary of Finding on VHVs' Performance.

Studies	Classification by performance of VHVs (%).		
	Low	**Moderate**	**High**
Ketsophaphong B. (24)	31.33	0.00	68.67
Hognviritana T. (25)	76.00	0.00	24.00
Khim MH. (26)	0.00	67.40	32.60
Tiewsuwan B. (27)	48.80	0.00	51.20
Ratman S. (28)	37.30	23.90	38.80
Nguyen T. (29)	25.00	0.00	75.00
Kumar R. (30)	42.00	30.33	27.67
Thi P. (31)	12.10	56.80	31.10
Kongsap S. (32)	23.70	0.00	76.30

2.8.2 Socio-demographic factors

Age

The studies of Tiewsuwan B (27), Kongsap S (32), Nguyen T (29), Piedad V (33), and Thi P (31), showed the significant association between age group and performance of VHVs (P-value= 0.043, p-value= 0.020, p-value= 0.025, p-value= 0.032 and p-value< 0.001 respectively). The study of Yenn R (34), also found that age group was significantly related to participation of VHVs (p-value= 0.045)

The studies of Ketsophaphong B (24), Jinpeng X (35), showed no significant relationship between age group and performance of VHVs. The study of Kaori S (36), found that age was not significant relationship between age group and performance of peer educators. The studies of Kumar R. (30), Tin T (37), showed no significant related to participation of VHVs.

Gender

The study of Thi P (31), showed significantly associated between gender and performance of VHVs, but the studies of Ketsophaphong B (24), and Jinpeng X (35), showed no significantly associated between gender and performance of VHVs. The study of Kaori S (36), found that gender was not significantly related to performance of peer educators.

Education

The study of Shrestha SK (38), showed that there was significant association between educational level and job satisfaction. It was recommended that educational background should be considered in selecting VHVs, there was significantly associated between educational and performance of VHVs in the study of Khin MH (39). But the study of Tiewsuwan B (27), found that there was not significantly associated between education and performance of VHVs.

Lengrugsa V (40), and Chan-amrung S (41), showed that difference of education had effect on participation on PHC of VHVs and concluded that people who

were received high education has more participation than those who were obtained lower education.

Occupation

The relationship between occupation and performance of VHVs was showed in the study of Piedad V (33). It was indicated that farmers are more associated low performance compared to traders/laborers that trended to be the high performance group. The study of Ketsophaphong B (24), showed no significant association between occupation and performance of VHVs.

Marital status

Tiewsuwan B (27), reported that there was no significant association between marital status of VHVs and their performance. But the study of Ratioran S (42), found that marital status had effect on participation of VHVs.

The study of Herandi. (43), revealed that married people had more stable than unmarried and are able to perform more better in tasks and responsibilities.

Family income

The study of Tiewsuwan B (27), found that VHVs who had sufficient income with saving trended to have a higher proportion of satisfactory performance than those who had insufficient income. However, the family income was not significantly associated with their performance. And Phouthongsri K (44), mentioned that VHVs had more monthly income they had good performance.

Duration of working

The studies of Tiewsuwan B (27), Kongsap S (32), and Jinpeng X (35), showed no significant association between duration of working as a VHV and performance of VHVs (P-value= 0.003, p-value= 0.005, and p-value= 0.001 respectively). The study of Kaori S (36), showed significant association between duration of working and performance of peer educators (p-value= 0.006). Similarly, the study of Yenn R (34), and Ratioran S (42), also found that working experience

and duration of being volunteers which meant the same as duration of working was significantly related to participation of VHVs (P-value= 0.020, p-value= 0.035, respectively). By contrast, the studies of Ketsophaphong B (24), Nguyen T (29), showed no significant relationship between duration of working and performance of VHVs.

2.8.3 Psycho-social factors

Knowledge

The studies of Ketsophaphong B (24)**,** Kongsap S (32), Nguyen T (29), showed that knowledge of People Sector Health System (PSHS), Dengue Haemorrhagic Fever prevention and control, and nutrition respectively were significantly associated with performance of VHVs VHVs (P-value= 0.035, p-value< 0.001 at significant level 0.05, p-value< 0.001 at significant level 0.01 respectively)

On the other hand, the study of Tiewsuwan B (27), revealed that there was no significant relationship between knowledge of the PHC and CPHCC concept, and performance effectiveness of VHVs. Yenn R (34), studied the participation of VHVs in nutrition activities programs and found that knowledge of nutritional surveillance activities and nutritional education was not significantly associated with participation of VHVs. The study of Kaori S (36), showed no statistically significant association between knowledge about HIV/AIDS prevention and performance of peer educators.

Perception

Ketsophaphong B (24), investigated perception towards PSHS, which was divided into four factors, perception on benefit of PSHS concept and policy, perception on barrier of PSHS concept and policy, perception on benefit of practice under PSHS, and perception on barrier of under PSHS. The overall perception towards PSHS was found to be significantly associated with performance VHVs (p-value= 0.036). However, with regard to each factors, only perception on benefit of PSHS concept and policy was found to be significantly associated with performance VHVs (p-value< 0.001) while the other factors were proven to be not significantly associated with performance VHVs.

The studies of Kongsap S (32), Tiewsuwan B (27), showed the perception towards Dengue Haemorrhagic Fever prevention and control, and Community Primary Health Care Center (CPHCC) were significantly association with performance of VHVs (P-value< 0.001, p-value = 0.001 respectively) and the study of Kaori S (36), showed that perception of HIV/AIDS prevention among high school students of peer educators (p-value< 0.001).

Piedad V (33), studied the relationship between the sense of volunteerism to be VHVs and performance of VHVs. In this research, the sense of volunteerism included 6 elements: village love, community appreciation, health center success, ability development, cooperative attitude and volunteering attitude. It was found that there was no significant association between the sense of volunteerism and performance of VHVs. The studies of Wacharakorn S (45), and Nitas R. (46), were found no association between perception and performance of VHVs.

Similarly, the study of Tin T (37), showed that the level of VHVs participation in HIV/AIDS prevention and control activities are tabulated with the level of perception to find out the relationship between the two variables. There was no significant association at the 0.05 level.

2.8.4 Social support

The study of Tiewsuwan B (27), found social support as a whole was significantly associated with satisfactory performance. (p-value= 0.001).

The study of Kongsap S (32), showed that performance of VHVs was significantly associated with financial support from Tambol administration organization (TAO), emotional support from TAO, financial support from health center, labor support from villagers, emotional support from health center (p-value= 0.033). In the contrary, there were no significant association found between performance of VHVs and instrumental support from TAO, instrumental support from health center, emotional support from health center and emotional support from

VHVs' club. Yenn R (34), showed in his study that material support was significantly associated with participation of VHVs (p-value<0.001).

Ketsophaphong B (24), showed in his study that performance of VHVs was significantly associated with overall social support as well as each mental, instrumental and information support (p-value= 0.001). Piedad V (33), showed no significant association between supervision by health center personnel and performance of VHVs. With regard to instrumental support, it found that there was a signification association between supply of materials and performance of VHVs whereas no significant association between nutritional fund and performance of VHVs.

The study of Nguyen T (29), found a significant difference in terms of proportion between poor and good performance among those respondents who had no motivational support from family and those who had it, which meant that the VHVs who were supported by family tended to good performance. It was also found that the VHVs who had good performance were more supported from health staff in terms of IEC material provision and supervision. It indicated a slightly significant association between support from local leaders and performance (p-value= 0.012). When breaking down each component of motivational support from local leaders, there were significant associations between performance and help to solve the problems, facilitate the working conditions, discuss about monthly plan of nutrition program, check in the field, interview local people, and IEC material provided. (P-value=0.027, p-value= 0.008, p-value=0.005, p-value=0.003, p-value=0.006,and p-value=0.006 respectively)

Ratioran S (42), investigated the association between participation of VHVs and sources of support including emotional, instrumental and informational supports. It was found that emotional support by health personnel was significantly associated with participation of VHVs (p-value= 0.005) whereas there were no signification associations between participation of VHVs and other emotional support by relative, neighbor, committee in the village and religious priest, all instrumental supports and all informational support. Kaori S (36), showed the association between

performance of peer educators, and each category of social support, namely: informational support, instrumental support and emotional support. All categories of social support had statistically significant associations with performance of peer educators. All of them showed the same trend that higher level of social support respondents got, more likely respondents had high performance.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Research design

This study was a cross-sectional descriptive study. The dependent variable was the performance of VHVs on TB prevention. The independent variables were socio-demographic factors, psychosocial factors and social support. Each factor was identified and ascertained whether it was associated with the dependent variable. The study was conducted with VHVs who were working in Mahachanachai district, Yasothon province, Thailand.

3.2 Study population

The target population in this study were VHVs living in Mahachanachai district, Yasothon province, Thailand.

3.3 Study area

Mahachanachai district, Yasothon province, is located in the north-east of Thailand, approximately 560 kilometer from Bangkok. Yasothon province covers an area of approximately 455.27 square kilometer, and has a population density of 128.87 per square kilometer. It has 10 sub-districts and 103 villages, a total population of 58,361, and 1,087 VHVs.

3.4 Sample size estimation

According to a previous study of Kongsap S (32), the proportion of good performance of VHVs was 0.512. Therefore, the sample size of this study was calculated by using the formula of Cochran (47) as follows:

$$n = \frac{NZ^{2}_{\frac{\alpha}{2}} p(1-p)}{(N-1)d^{2} + Z^{2}\frac{\alpha}{2}P(1-P)}$$

n: The desirable calculated sample;

N: Total number of VHVs in Mahachanachai district, Yasothon province = 1,087 VHVs;

$z^{2}_{\frac{\alpha}{2}}$: 1.96 at 95% confidence interval;

P: The proportion of the good performance of VHVs from previous study = 0.512 (32);

d: Absolute precision in this study set at 0.05.

$$n = \frac{(1087)(1.96)^{2}(0.512)(0.488)}{(1086)(0.05)^{2} + (1.96)^{2}(0.512)(0.488)} = 285$$

To prevent information loss from incomplete data and withdrawal of participants from this study, the sample size was increased by adding 10 % of original sample size. Therefore, the sample size in this study was 315.

3.5 Sample technique

In this study, Mahachanachai district was randomly selected among top 3 districts of current highly TB incidence. Five out of ten sub-districts were also randomly selected. VHVs in each sub-district were selected by proportional random sampling technique. The detailed procedure for the selection is shown in the Table 5.1 and flow chart below.

Table 3.1 Distribution of VHVs in Mahachanachai district, Yasothon province.

Sub-district	No. of VHVs	No. of sample
Nhonsai	67	**41**
Huamuaeng	137	**84**
Kumuaeng	130	**80**
Puehee	76	**46**
Bakruer	104	**64**
Total	514	**315**

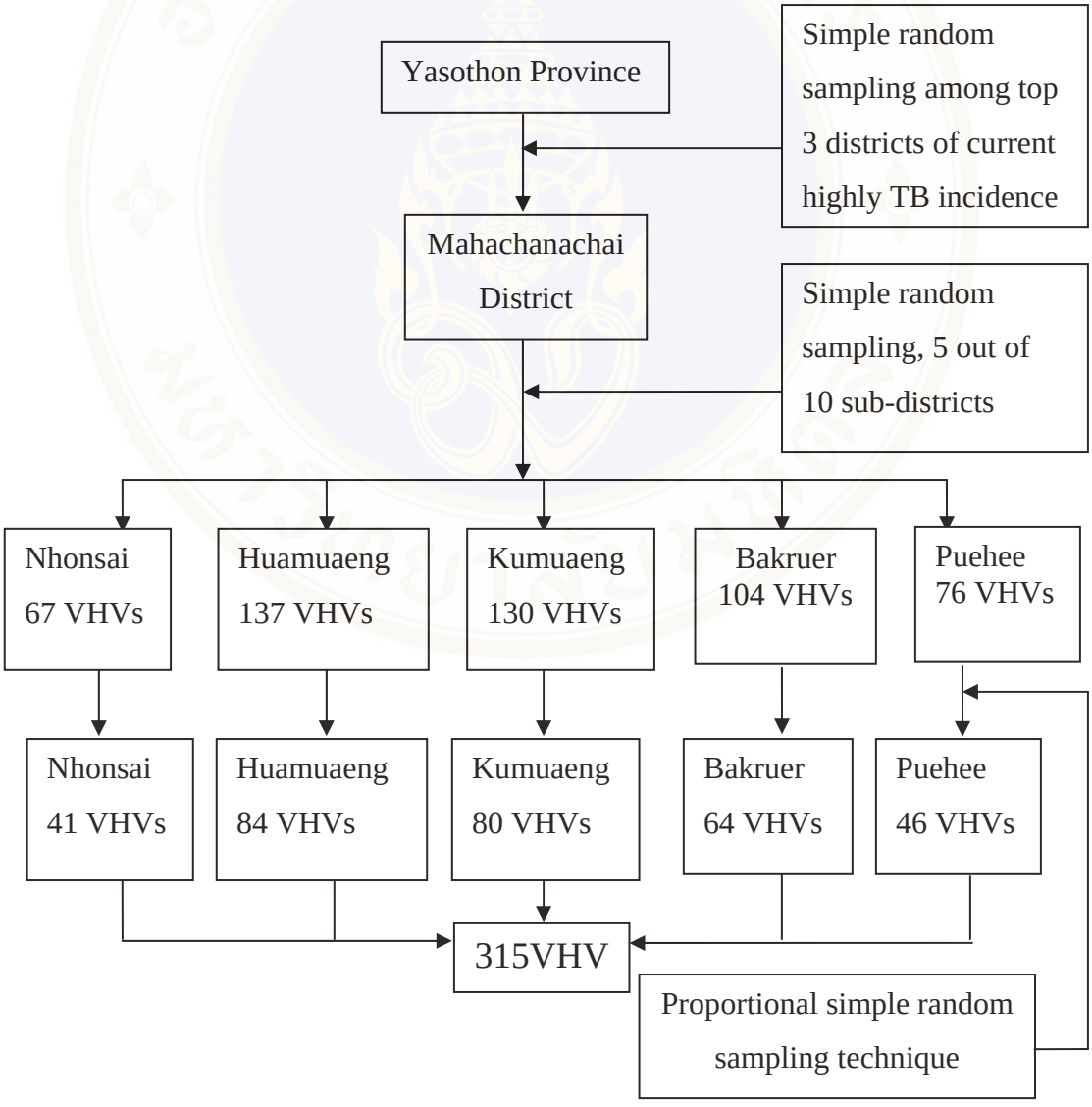

Figure 3.1 Diagram of sampling technique

3.6 Instrument development

A structured self-administered questionnaire for individual interviewing was used as the tool for data collection. The contents of the questionnaire comprised 5 parts as follows:

Part I: Socio-demographic factors
Part II: Knowledge on TB prevention
Part III: Perception towards performing TB prevention
Part IV: Social support factors
Part V: Performance of VHVs

Part I: Socio-demographic factors

The questions were included about age**,** gender, marital status, education, occupation, duration of working, and family monthly income of VHVs.

Part II: Knowledge on TB prevention

The questions in this part were designed to measure understanding on TB prevention. There were multiple choice 14 questions. A correct answer was given “1” point and incorrect was given “0” The knowledge towards TB prevention was classified into three levels, according to Benjamin Bloom criteria (48) as follows:

Good knowledge = > 80% of total score
Moderate knowledge = 60-80% of total score
Poor knowledge = < 60% of total score

Part III: Perception towards performing TB prevention

There were 17 questions to measure perceptions relating to TB prevention by VHVs including perceived benefits and perceived barriers regarding their working. Using Rensis Likert scale (49), a five point rating scale for positive and negative statement was used as follows:

	Positive statement	Negative statement
Strongly agree	5	1
Agree	4	2
Uncertain	3	3
Disagree	2	4
Strongly disagree	1	5

A perception was classified into three levels according to Best's Rating Criteria (50) as follows:

High perception = > 63 scores
Moderate perception = 41-63 scores
Low perception = < 41 scores

Part IV: Social support factors

The respondents were asked 17 questions about social support. Yes/No questions were used. "Yes" was given 1 point, "No" was given 0 point. The social support was classified into three levels as follows:

High social support = > 80% of total score
Moderate social support = 60-80% of total score
Low social support = < 60% of total score

Social support was categorized by source, namely: health center staff, district health office staff, family members, local leaders, neighbors, and VHVs' club. Answering "Yes" to any of social support source questions indicated that the respondents received of social support from that source. Negative answered meant the opposite.

Part V: Performance of VHVs

15 questions based on the roles in terms of primary TB prevention in community were used to measure the performance of VHVs on TB prevention, and were scored as follows: Always = 2, Sometimes = 1, Never = 0. The performance of VHVs was categorized into two levels by using mean as below:

High performance ≥ Mean

Low performance < Mean

3.7 Pre-testing of the questionnaire

Regarding the validity of the questionnaire, it was corrected based on suggestions made by the researcher's major advisor and co-advisor. For the reliability of the questionnaire, a pretest was conducted with VHVs in Songyang sub-district, Yasothon province. The knowledge part was analyzed by using KR20 and the perception part was analyzed by using Cronbach's alpha. KR20 and Cronbach's alpha were calculated by using the Minitab software program, and they were 0.7558 and 0.6692 respectively. Based on the result of pre-testing, one question was deleted from perception part due to Cronbach's alpha was only 0.6209.

3.8 Data collection

After getting permission from the Ethics Committee, the data collection was undertaken as follows:

1. A formal letter from the AIHD was sent to the director of Mahachanachai district health office for asking the permission to collect data in the target area.

2. After getting the permission to collect data from the director of Mahachanachai district health office, the researcher contacted to all the health center chiefs to explain the purposes and process of this study, particularly the protection of human rights to the VHVs, and asked them to be coordinators of this research.

3. The coordinators were asked to set an appointment for meeting all VHVs at health centers.

4. The researcher went to meet all the VHVs of each sub-district to explain the purposes and process of this study to protection of human rights and inform the number of VHVs to participation.

5. When VHVs understood the purposes and process of this study and had decided to participate, the researcher distributed the participant information and human rights protection sheet and questionnaire to them. The time to complete this questionnaire was about 15 - 20 minutes.

6. After the questionnaires were completed, the participants were asked to return only the questionnaires into the boxes at the health centers, whereas the participant information and human rights protection sheet was kept with them.

3.9 Data analysis

EpiData was used for data entry and each item was coded, check consistency of coding in all questionnaire forms by using coding table as well as check and edit consistency of data in all variables. Minitab version 13 statistical packages was used as tool for analysis. Frequency distribution was used to identify the characteristics of independent variables. Chi-square test and Fisher's exact test were used to describe the association between performance of VHVs prevention on TB and the independent variables.

CHAPTER IV
RESEARCH RESULTS

This research was conducted to study the performance of VHVs on TB prevention in Mahachanachai district, Yasothon province, Thailand. The target population comprised VHVs currently living in 103 villages of 10 sub-districts and working in Mahachanachai district. From 10 sub-districts, 5 sub-districts were selected as targets by simple random sampling, and VHVs in each sub-districts were selected by proportional random sampling technique. Data was collected through self-administered questionnaire from 315 VHVs. The aims of this study were to identify the performance of VHVs on TB prevention, and independent variables: socio-demographic factors, psycho-social factors, and social support and to describe the relationship between independent variables and performance of VHVs on TB prevention.

The results of the data analysis are presented in two parts: the first part comprising descriptive statistics is shown in tables of frequency and percentage distribution of all variables. The second part using Chi-square test and Fisher's exact test showed the associations between each of the independent variables and the performance of VHVs.

4.1 Socio-demographic characteristics of the respondents

The frequency and percentage distribution of socio-demographic variables are shown in Table 4.1. Nearly one-half (40.63%) of respondents were middle age between 35-44 years, followed by the age between 45-54 years (30.48%). The minimum age was 24 and the maximum age was 69 years. Median age of respondents was 43 years.

Female VHVs (83.49%) were five times as numerous as male VHVs (16.51%). The great majority (92.70%) of respondents were married; only a few were single (0.95%), and 6.35 percent were divorced, widowed and separated. Slightly two-thirds (67.30%) of respondents had primary education while 29.84 percent of them had secondary education, only a few 1.90 percent had received vocational education (1.90%) and bachelor degree education in this study (0.95%).

Regarding their occupations, farmer group was the largest percentage (97.14%) of occupation distribution among the total respondents. The trader and laborer group accounted to only 1.59 percent and 1.27 percent respectively.

For duration of working as VHV, 30.48 percent of respondents had duration of working ranged from 1 to 5 years, followed by (29.21%) had duration of working 6 to 10 years.

The family monthly income ranged from 500 baht to 75,000 baht, average was 5,580 baht. The majority (70.48%) of respondents had family monthly income ranging from 1,000 to 5,000 baht, while 3.17 percent of respondents received their family monthly income less than 1,000 baht.

Table 4.1 Frequency and Percentage of Respondents by Socio-demographic Characteristics.

Socio-demographic variables	Frequency (n= 315)	Percentage
Age group (Years)		
< 35	51	16.19
35 - 44	128	40.63
45 - 54	96	30.48
> 54	40	12.70
Median= 43, QD= 6.5, Min= 24, Max= 69		
Gender		
Male	52	16.51
Female	263	83.49
Marital status		
Single	3	0.95
Married	292	92.70
Widowed/Divorced/Separated	20	6.35

Table 4.1 Frequency and Percentage of Respondents by Socio-demographic Characteristics (cont.)

Socio-demographic variables	Frequency (n= 315)	Percentage
Education		
Primary school	212	67.30
Secondary school	94	29.84
Vocational school	6	1.90
Bachelor degree or higher	3	0.95
Occupation		
Farmer	306	97.14
Trader	5	1.59
Laborer	4	1.27
Duration of working as VHV (Years)		
≤ 5	96	30.48
6-10	92	29.21
11-15	54	17.14
16-20	38	12.06
> 20	35	11.11

Mean= 10.73, SD= 7.45, Min= 1, Max= 30

Table 4.1 Frequency and Percentage of Respondents by Socio-demographic Characteristics (cont.)

Socio-demographic variables	Frequency (n= 315)	Percentage
Family monthly income (Baht)		
< 1,000	10	3.17
1,000-5,000	222	70.48
5,001-10,000	65	20.63
> 10,000	18	5.71
Mean= 5,580, SD= 7,386, Min= 500, Max= 75,000		

4.2 Performance of VHVs on TB Prevention

Table 4.2 shows the frequency and percentage distribution of the respondents by performance of VHVs. The total score of 15 questions was categorized by mean as high or low. Slightly over one-half (56.51%) of the respondents had high performance scores for TB prevention and 43.49 percent had low performance scores.

Table 4.2 Frequency and Percentage of Respondents by Level of Performance

Level of performance of VHVs	Frequency (n= 315)	Percentage
High performance	178	56.51
Low performance	137	43.49
Mean= 21.597, SD= 5.108, Min= 4, Max= 30		

Score: Low= < Mean, High= ≥ Mean

The percentage distribution of respondents by each question about performance of VHVs is presented in Table 4.3

Combining the percentages in always and sometimes, the most of activity (98.73%) was to advise TB patients and other people to cover their noses and mouths when coughing or sneezing. It was very closely followed by disseminating knowledge about TB to villagers (98.10%). In terms of five roles of VHVs on TB prevention, advising the group of TB suspected cases for TB examination and sending sputum samples to a health center was the most concerned by VHVs' performance with 97.46 percent on average. The second role was to report the result/number of TB suspected cases (96.19%), followed by to provide health education/health information for villagers (95.74%), an active case finding TB program by using TB screening forms (95.24%), and coordinating with health center staff (86.67%). In addition, more than

85 percent of respondents performed all kinds of roles for TB prevention (shown in Table 4.23 in appendix B).

On the other hand, there were a percentage of respondents that never demonstrated making a sputum collection and coordinated with health center staff (13.33%), followed by never discussed with villagers about TB prevention (6.67%), advising people who have chronic diseases (6.35%), and never demonstrated wearing masks (4.13%).

Regarding the detail of VHVs performance on TB prevention revealed that, the majority (78.73%) of respondents always advised patients and other people to cover their noses, mouths when a coughing or sneezing and nearly two-thirds (64.13%) of them always screened people according to TB criteria by using TB screening forms, advising the group of TB suspected cases to send sputum samples (54.92%), advising people to keep house clean and have good ventilation (53.02%), and advising TB patients and people to spit properly (52.38%), respectively.

Table 4.3 Percentage of Respondents Related to Performance on TB Prevention by Activities.

Questions about performance of VHVs (n=315)	Always (%)	Sometimes (%)	Never (%)
Providing health education/health information			
1. Have you ever disseminated knowledge about TB to the villagers?	44.13	53.97	1.90
2. Have you ever advised any person suspected to have TB to see health personnel or a doctor for TB examination?	49.21	47.94	2.86

Table 4.3 Percentage of Respondents Related to Performance on TB Prevention by Activities (cont.)

Questions about performance of VHVs (n=315)	Always (%)	Sometimes (%)	Never (%)
3. Have you ever advised patients and other people to cover their noses, mouths when coughing or sneezing?	78.73	20.00	1.27
4. Have you ever advised people to keep houses clean, have good ventilation by opening doors/windows in houses during the daytime especially, in households with a TB patient?	53.02	43.81	3.17
5. Have you ever advised TB patients and people to spit properly as well as to dispose of sputum correctly?	52.38	44.44	3.17
6. Have you ever demonstrated wearing masks to patients and people?	45.08	50.79	4.13
7. Have you ever demonstrated making a sputum collection to TB suspects?	37.14	49.52	13.33
Coordinating with health center staff			
8. Have you ever coordinated with a health center staff to get TB materials support?	34.29	52.38	13.33
An active case finding TB program			
9. Have you ever participated in active case finding programs with other VHVs in the village?	50.48	45.71	3.81

Table 4.3 Percentage of Respondents Related to Performance on TB Prevention by Activities (cont.)

Questions about performance of VHVs (n=315)	Always (%)	Sometimes (%)	Never (%)
10. Have you ever screened people according to TB criteria by using TB screening forms in every households in your area responsibility?	64.13	33.65	2.22
11. Have you ever discussed with villagers about TB prevention in communities?	26.98	66.35	6.67
12. Have you ever advised people who have chronic diseases such as DM to send sputum for TB examination?	43.81	49.84	6.35
Reporting result/number TB suspected cases			
13. Have you ever reported the number of TB suspected cases to a health center staff?	48.89	47.30	3.81
Sending sputum and advising TB suspected cases go to hospital			
14. Have you ever advised a group of TB suspected cases to go to hospital for TB examination?	47.62	50.16	2.22
15. Have you ever advised a group of TB suspected cases to send sputum samples to the a health center?	54.92	42.22	2.86

4.3 Knowledge on TB prevention

Table 4.4 displays the frequency and percentage distribution of the respondents by level of knowledge about TB prevention. Data was elicited by 14 questions and knowledge levels were classified by using Benjamin Bloom's criteria as good, moderate or poor.

Slightly over one-half (56.83%) of respondents had good knowledge level and 39.05 percent had moderate knowledge, only 4.13 percent had poor knowledge. The mean of knowledge scores was 11.52 and standard deviation was 1.65. The minimum and maximum scores were 4 and 14 respectively.

Table 4.4 Frequency and Percentage of Respondents by Level of Knowledge about TB Prevention

Level of knowledge about TB prevention	Frequency (n= 315)	Percentage
Good	179	56.83
Moderate	123	39.05
Poor	13	4.13

Mean= 11.52, SD= 1.65, Min= 4, Max= 14

Score: Poor= ≤8 scores, Moderate= 9-11 scores, Good= ≥12 scores

The frequency and percentage distribution of respondents of correct answer by each question of knowledge are displayed in Table 4.5. The content of knowledge focused on TB prevention

Most of the respondents answer correctly with 82.33 percent on average (shown in Table 4.23 in appendix B). Most respondents knew that people prevent from

TB by advising TB patients to cover their mouths while coughing (97.14%), survey people who have a chronic coughing to prevent TB transmission to others (94.29%) and TB patients should properly dispose their sputum to prevent TB transmission (92.06%). However, only one-thirds (36.19%) of respondents knew about children under 5 years should do if one family members is diagnosed with TB.

Table 4.5 Frequency and Percentage of Respondents Related to Correct Answer of Questions about Knowledge on TB Prevention by Items.

Knowledge on TB prevention items	Frequency of correct answer (n= 315)	Percentage
1. Regular taking TB drugs is the most useful suggestion for TB prevention	239	75.89
2. Coughing/sneezing without covering the nose/mouth is the most easily TB bacilli transmission to others	282	89.52
3. Survey people who have a chronic coughing is the most correct to prevent TB transmission to others by TB screening program	297	94.29
4. Sending sputum for TB examination if coughing more than 2 weeks is the most important for TB prevention	264	83.81
5. TB patients should properly dispose their sputum in order to prevent TB transmission to others	290	92.06
6. If one member of family got TB last month people who living in the same household is the most likely to become infected with TB	278	88.25

Table 4.5 Frequency and Percentage of Respondents Related to Correct Answer of Questions about Knowledge on TB Prevention by Items (cont.)

Knowledge on TB prevention items	Frequency of correct answer (n= 315)	Percentage
7. Chronic cough > 2 weeks, mild fever in the evening, night sweats are the main symptoms of people who need to go to hospital for TB examination in order to prevent TB spread out	254	80.63
8. TB program have to screen in chronic disease group due to likely a chance to get TB such as DM	289	91.75
9. Advising TB patients to cover their mouths while coughing can prevent infection from TB	306	97.14
10. Keep their clothes clean regularly, cover mouths while coughing and keep good ventilation, all these things people can do in their household for preventing TB	257	81.59
11. Need to take some TB drugs in children under 5 years if one family member is diagnosed with TB	114	36.19
12. To eliminate TB germs should open doors/windows in the day time when staying in the same household as a TB patient	228	72.38
13. Mask is the best thing for a TB patient can use in order to prevent TB Bacilli transmission to others	286	90.79
14. TB germs likely mixed with Sputum	247	78.41

4.4 Perception towards TB prevention

Table 4.6 shows the frequency and percentage distribution of the respondents by level of perception towards TB prevention. The total score of 17 questions was classified by Best's Rating Criteria as high, moderate or low.

Slightly over two-thirds (69.84%) of the respondents had high perception towards TB prevention. Mean was 66.32 and standard deviation was 5.60. Minimum and maximum scores were 48 and 85, respectively.

Table 4.6 Frequency and Percentage of Respondents by Level of Perception towards TB Prevention

Level of perception towards TB prevention	Frequency (n= 315)	Percentage
High	220	69.84
Moderate	95	30.16
Low	0	0.00
Mean= 66.32, SD= 5.60, Min= 48, Max= 85		

Score: Low= <41 scores, Moderate= 41-63 scores, High= >63 scores

Table 4.7 shows the frequency and percentage of perception level of VHVs towards TB prevention in terms of benefit and barrier. Each perception is based on nine questions about perception of benefit and eight questions about perception of barrier. Both were classified by Best's Rating Criteria as high, moderate or low. The great majority (92.70%) of respondents had high perception of benefit towards TB prevention. The mean was 38.54 and standard deviation was 4.10. Minimum and maximum scores were 18 and 45, respectively.

However, with regard to barrier towards TB prevention, two-thirds (66.76%) of respondents had a moderate perception. The mean was 27.78 and standard deviation was 3.69. Minimum and maximum scores were 19 and 40, respectively.

Table 4.7 Frequency and Percentage of Respondents Classified by Perception towards TB Prevention

Perception towards TB prevention	Frequency (n= 315)	Percentage
Benefit*		
High	292	92.70
Moderate	21	6.67
Low	2	0.63
Mean= 38.54, SD= 4.10, Min= 18, Max= 45		
Barrier**		
High	105	33.33
Moderate	210	66.67
Low	0	0.00
Mean= 27.78, SD= 3.69, Min= 19, Max= 40		

*Score: Low= <22 scores, Moderate= 22-33 scores, High= >33 scores

**Score: Low= <19 scores, Moderate= 19-29 scores, High= >29 scores

The percentage distribution of the respondents by each statement is shown in Table 4.8. Among the statements about benefit of TB prevention, the respondents

had high level of perception in every statements based on mean and most of them (52.94%) had agreed greater percentage than strongly agreed (39.22%) on average (shown in Table 4.24 in appendix B). 52.38 percent of them had strongly agreed that VHVs advising about mask wearing in TB patients and people who have coughing can prevent others get TB at the highest percentage with highest mean (4.45), and only 0.95 percent of them had strongly disagreed, while the statement that VHVs performing on TB program can change behavior of people on TB prevention was strongly agreed at the lowest percentage (23.81%).

Comparing the TB program of changing attitude and changing behavior with improving the understanding of people, showed that they had strongly agreed on improving the understanding of people at more percentage than changing attitude and changing behavior (46.98%, 24.44%, and 23.81%, respectively).

Among the statements about barrier towards TB prevention, slightly one-thirds (35.04%) of the respondents had disagreed greater percentage than agreed (34.28%) on average (shown in Table 4.24 in appendix B). 57.46 percent of them had disagreed that mask wearing for TB prevention getting more uncomfortable to communication, while a few of respondents (0.95%) had strongly disagreed that working on TB screening cannot cover all TB suspected cases. However, 21.27 percent of them had strongly agreed that most people do not awareness to improve good ventilation and keep clean in their house.

Table 4.8 Percentage of Respondents Related to Perception towards TB Prevention by a Five Items Index Analysis

Statements (n= 315)	SA (%)	A (%)	Un (%)	D (%)	SD (%)	Mean	Comment
Benefit							
1.Performing on TB health education can improve more understanding of people.	46.98	46.98	3.81	0.95	1.27	4.37	High
2.Performing on TB program can contribute to reduce the risk of TB.	40.95	53.97	2.54	1.59	0.95	4.32	High
3.Performing on TB program provide opportunity for people to have more surveillance about TB prevention.	37.78	55.24	5.08	0.95	0.95	4.27	High
4.Performing on TB program can change behaviour of people on TB prevention**.**	23.81	63.49	9.84	1.90	0.95	4.07	High
5.Launching on TB program can detect TB case earlier.	44.76	48.57	4.76	0.95	0.95	4.35	High

Table 4.8 Percentage of Respondents Related to Perception towards TB Prevention by a Five Items Index Analysis (cont).

Statements (n= 315)	SA (%)	A (%)	Un (%)	D (%)	SD (%)	Mean	Comment
Benefit							
6.Performing on TB program can change attitude of people on TB prevention.	24.44	58.73	15.24	0.95	0.63	4.05	High
7.Performing on TB program can reduce number of TB case.	39.37	53.33	5.40	0.95	0.95	4.29	High
8.Advising about mask wearing in TB patients and people who have coughing can prevent other people get TB.	52.38	43.49	2.22	0.95	0.95	4.45	High
9.Advising about sputum collection in people with a cough more than 2 weeks need to have sending sputum for TB examination.	42.54	52.70	2.22	1.59	0.95	4.34	High

Table 4.8 Percentage of Respondents Related to Perception towards TB Prevention by a Five Items Index Analysis (cont).

Statements (n= 315)	SA (%)	A (%)	Un (%)	D (%)	SD (%)	Mean	Comment
Barrier							
10.Performing on health education for TB program will add more VHVs workload.	5.08	26.67	6.67	52.70	8.89	3.33	Moderate
11.VHVs will likely a chance to get TB infection during working on TB prevention program.	13.02	33.97	25.08	23.81	4.13	3.27	Moderate
12.Mask wearing for TB prevention getting more uncomfortable to communication.	4.76	17.46	8.89	57.46	11.43	3.53	Moderate
13.VHVs did not have support on TB screening program.	5.08	26.03	18.10	39.68	11.11	3.25	Moderate
14.Working on TB screening cannot cover all TB suspected cases.	13.97	43.81	19.37	21.90	0.95	3.47	Moderate

Table 4.8 Percentage of Respondents Related to Perception towards TB Prevention by a Five Items Index Analysis (cont).

Statements (n= 315)	SA (%)	A (%)	Un (%)	D (%)	SD (%)	Mean	Comment
Barrier							
15.Most people do not awareness and cooperate to prevent TB in community.	16.19	54.29	11.43	16.51	1.59	3.66	Moderate
16.Uncomfortable to wake up in early morning to collect sputum with TB suspected cases for sending TB examination	6.35	18.10	10.79	53.97	10.79	3.44	Moderate
17.Most people do not awareness to improve good ventilation and keep clean in house.	21.27	53.97	8.25	14.29	2.22	3.77	High

Score: Low= 1 to 2.33, Moderate= 2.34 to 3.67, High= 3.68 to 5

SA= Strongly agree, A= Agree, Un= Uncertain, D= Disagree, SD= Strongly disagree

4.5 Social support to VHVs' performance

Table 4.9 shows the frequency and the percentage distribution of the respondents by level of social support. The total score of 15 questions was classified by Benjamin Bloom's criteria as high, moderate or low. The majority (76.51%) of respondents had high social support, 19.68 percent had moderate social support and only 3.81 percent had low social support. The mean total social support score was 15.07 and standard deviation was 2.12. Minimum and maximum scores were 7 and 17, respectively.

Table 4.9 Frequency and Percentage of Respondents by Level of Social Support

Level of social support	Frequency (n= 315)	Percentage
High	241	76.51
Moderate	62	19.68
Low	12	3.81
Mean= 15.07, SD= 2.12, Min= 7, Max= 17		

Score: Low= ≤10 scores, Moderate= 11 to13 scores, High= ≥14 scores

Table 4.10 shows the frequency and percentage distribution by level of difference categories of social support, namely: emotional support, informational support and instrumental support. Emotional support (83.17%) had the highest proportion of high level among three categories of social support, followed by the second highest of informational support with 76.51 percent. Although, instrumental support (44.13%) had the lowest social support, however it found that 45.08 percent was at moderate level. Therefore, emotional support, and informational support were relatively quite high support for the respondents due to a few of respondents found low level of social support (4.13% and 4.76 %, respectively).

Table 4.10 Frequency and Percentage of Respondents by Level of Difference Categories of Social Support

Level of social support	Frequency (n= 315)	Percentage
Emotional support*		
High	262	83.17
Moderate	40	12.70
Low	13	4.13
Mean= 6.50, SD= 0.95, Min= 2, Max= 7		
Informational support**		
High	241	76.51
Moderate	59	18.73
Low	15	4.76
Mean= 4.56, SD= 0.88, Min= 1, Max= 5		
Instrumental support***		
High	139	44.13
Moderate	142	45.08
Low	34	10.79
Mean= 4.00, SD= 1.14, Min= 0.00, Max= 5		

*Score: Low= ≤4 scores, Moderate= 5 scores, High= 6 to 7 scores

**Score: Low= ≤2 scores, Moderate= 3 scores, High= 4 to 5 scores

***Score: Low= ≤2 scores, Moderate= 3 scores, High= 4 to 5 scores

Table 4.11 indicates the frequency and percentage distribution of social support which categories by source, namely: health center staff, district health office staff, family members, local leaders, neighbors, and VHVs' club.

The great majority (91.11%) of respondents received social support from family members, followed by local leaders (88.89%), neighbors (87.62%), district health office staff (87.30%), VHVs' club (66.35%) and health center staff (41.90%).

Table 4.11 Frequency and Percentage of Respondents by Source of Social Support

Source of social support (n= 315)	Frequency (Received)	Percentage
Family members	287	91.11
Local leaders	280	88.89
Neighbors	276	87.62
District health office staff	275	87.30
Health center staff	132	41.90
VHVs' club	209	66.35

Table 4.12 shows the percentage distribution of the respondents by each question about social support. In terms of emotional support of the respondents found that all of the statements had a very high percentage, namely: VHVs received a consultation from health center staff (96.83%) at the highest percentage, followed by receiving any collaboration and support about TB prevention from VHVs' club (95.87%) and family members encouraged on TB prevention with 94.92 percent, Although, VHVs received any praise from neighbors towards TB prevention at the

lowest of emotional support, however, the respondents were relatively got a quite high percentage (87.62%).

Similarly, the informational support displayed all of the statements had a very high percentage, namely: VHVs received any advice from VHVs' club (94.29%) at the highest percentage, followed by receiving TB information from health center staff (93.65%) and training about TB prevention from health center staff with 92.70 percent. Although, receiving a training about TB prevention from district health office staff at the lowest of informational support similar to emotional support, however, the respondents (87.30%) were relatively got a quite high percentage.

With regard to instrumental support, found slightly different from emotional support and informational support. The great majority (92.38%) of respondents who had high percentage was to receive any material for TB screening program from health center staff, while the respondents who had the lowest percentage of instrumental support with 59.68 percent was to receive special budgets or incentives from health center staff.

Combining the average of percentage of each source of social support showed that the respondents (92.88%) had the emotional support at the highest support, followed by the informational support (91.36%) and the instrumental support with 80.06 percent (shown in Table 4.23 in appendix B).

Table 4.12 Frequency and Percentage of Respondents Related to Social Support by Items.

Items (n= 315)	Frequency (Yes)	Percentage
Emotional support		
1. Family members encourage to work as a VHV on TB prevention.	299	94.92
2. Family members help to do household work or take care of children while working on TB prevention.	297	94.29
3. Receiving any praise from neighbors.	276	87.62
4. Receiving any acceptance from local leaders.	280	88.89
5. Receiving any appreciation from health center staff.	289	91.75
6. Receiving any collaboration and support from VHVs' club.	302	95.87
7. Receiving a consultations from health center staff.	305	96.83
Informational support		
8. Receiving any advice from VHVs' club.	297	94.29
9. Receiving TB information, namely; any posters, leaflets from VHVs' club.	280	88.89
10. Receiving TB information from health center staff.	295	93.65
11.Training about TB prevention from health center staff .	292	92.70
12.Training about TB prevention from district health office staff.	275	87.30

Table 4.12 Frequency and Percentage of Respondents Related to Social Support by Items (cont.)

Items (n= 315)	Frequency (Yes)	Percentage
Instrumental support		
13. Receiving any materials from the VHVs' club.	246	78.10
14. Receiving any IEC materials such as posters, leaflets from health center staff.	286	90.79
15. Receiving any materials such as TB screening forms for TB screening from health center staff.	291	92.38
16. Receiving any materials such as small sputum boxes for sputum collection from health center staff.	250	79.37
17. Receiving any special budgets or incentives from health center staff.	188	59.68

4.6 Association between socio-demographic factors and performance of VHVs

Table 4.13 shows the results of Chi-square analysis between socio-demographic factors and performance of VHVs. With regard to age group, the age of the respondents were classified into four groups. The result showed that there was significantly associated between age group and performance of VHVs (p-value=0.025).

Regarding gender, the result showed that the highest performance (57.79%) was in the female group. However, there was no significantly associated between gender and performance of VHVs (p-value=0.300).

With regard to marital status, there was more than 20 percent of cells that have expected frequency less than 5. Therefore, the categories, single and widowed/divorced/separated were combined. The Chi-square technique had been used to analysis again. The result revealed that there was no significantly associated between marital status and performance of VHVs (p-value=0.190).

After combining categories of occupation (trader and laborer), Chi-square test could not be applied due to more than 20 percent of cells that have expected frequency less than 5. Fisher's exact test was used to analysis. The result indicated that there was no significantly associated between occupation and performance of VHVs (p-value=0.736).

Education, there was more than 20 percent of cells that have expected frequency less than 5. Therefore, the categories, secondary education, vocational education and bachelor degree group were combined. The Chi-square technique had been used to analysis again. The result showed that there was no significantly associated between education and performance of VHVs (p-value=0.358).

The duration of working, although there was no significantly associated between duration of working and performance of VHVs (p-value=0.280). However, the longer experience of working as VHV, more likely had higher proportion of high performance.

Family monthly income, the result revealed that there was no significantly associated between family monthly income and performance of VHVs (p-value=0.762).

Table 4.13 Association between Socio-demographic Variables and Performance of VHVs

Socio-demographic variables	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Age group (years)					9.319	**0.025***
< 35	20	39.22	31	60.78	(3)	
35 - 44	78	60.94	50	39.06		
45 - 54	60	62.50	36	37.50		
> 54	20	50.00	20	50.00		
Gender					1.073	0.300
Male	26	50.00	26	50.00	(1)	
Female	152	57.79	111	42.21		
Marital status					1.721	0.190
Single	3	100.00	0	0.00	(1)	
Married	162	55.48	130	44.52		
Widowed/Divorced Separated	13	65.00	7	35.00		

Table 4.13 Association between Socio-demographic Variables and Performance of VHVs (cont.)

Socio-demographic variables	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Occupation						0.736[F]
Farmer	172	56.21	134	43.79		
Trader	4	80.00	1	20.00		
Laborer	2	50.00	2	50.00		
Education					0.846	0.358
Primary school	116	54.72	96	45.28	(1)	
Secondary school	55	58.51	39	41.49		
Vocational school	4	66.67	2	33.33		
Bachelor degree/ higher	3	100.00	0	0.00		
Duration of working					5.073	0.280
≤ 5	53	53.21	43	44.79	(4)	
6-10	46	50.00	46	50.00		
11-15	30	55.56	24	44.44		
16-20	26	68.42	12	31.58		
> 20	23	65.71	12	34.29		

Table 4.13 Association between Socio-demographic Variables and Performance of VHVs (cont.)

Socio-demographic variables	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Family monthly income (Baht)					1.164	0.762
< 1,000	6	60.00	4	40.00	(3)	
1,000-5,000	127	57.21	95	42.79		
5,001-10,000	37	56.92	28	43.08		
> 10,000	8	44.44	10	55.56		

* p-value < 0.05

^{F} Fisher's exact test

4.7 Association between knowledge towards TB prevention and the performance of VHVs

The association between knowledge about TB prevention and performance of VHVs is presented in Table 4.14. The result showed that 59.22 percent of those who had good level of knowledge had high performance and 84.62 percent of those who had poor knowledge had high performance. Nevertheless, there was significantly associated between knowledge about TB prevention and performance of VHVs (p-value=0.029).

Table 4.14 Association between Level of Knowledge about TB Prevention and Performance of VHVs

Level of knowledge on TB prevention	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Knowledge					7.107	**0.029***
Good	106	59.22	73	40.78	(2)	
Moderate	61	49.59	62	50.41		
Poor	11	84.62	2	15.38		

* p-value < 0.05

4.8 Association between perception performing towards TB prevention and performance of VHVs

The result in the Table 4.15 shows that slightly over one-half (56.82%) of those who had high level of perception had high performance towards TB prevention, while those who had moderate level of perception had high performance (55.79%). In addition, without the result of low perception level due to there were no any respondents involved at this level. There was no significantly associated between perception of performing towards TB prevention and performance of VHVs (p-value=0.866).

Table 4.15 Association between Level of Perception on TB Prevention and Performance of VHVs

Level of perception on TB prevention	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Perception					0.029	0.866
High	125	56.82	95	48.18	(1)	
Moderate	53	55.79	42	44.21		

Table 4.16 shows the association between level of perception of performing TB prevention and performance of VHVs by categories, there are benefit and barrier perception. Considering benefit perception, there was more than 20 percent of cells that have expected frequency less than 5. Therefore, the categories, moderate level and low level of benefit perception were combined. The Chi-square technique had been used to analysis again. The result showed that there was no significantly associated between benefit perception of performing TB prevention and performance of VHVs. With regard to barrier perception, without the result of low barrier perception level due to there were no any respondents involved at this level. However, there was significantly associated between barrier perception of performing TB prevention and the performance of VHVs (p-value=0.045).

Table 4.16 Association between Level of Difference Categories of Perception on TB Prevention and Performance of VHVs.

Level of perception on TB prevention	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Benefit perception					0.761	0.383
High	167	57.19	125	42.81	(1)	
Moderate	10	47.62	11	52.38		
Low	1	50.00	1	50.00		
Barrier perception					4.037	**0.045***
High	51	48.57	54	51.43	(1)	
Moderate	127	60.48	83	39.52		

* p-value < 0.05

4.9 Association between social support and performance of VHVs

Table 4.17 shows that VHVs who had high social support, had high level of performance with 62.66 percent, compared to those who had moderate and low level of social support (40.32% and 16.67% respectively). The result also showed that there was significantly associated between social support of performing TB prevention and performance of VHVs (p-value<0.001).

Table 4.17 Association between Level of Social Support and Performance of VHVs

Level of social support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
					18.065	**<0.001***
High	151	62.66	90	37.34	(2)	
Moderate	25	40.32	37	59.68		
Low	2	16.67	10	83.33		

* p-value < 0.001

Table 4.18 shows the association between performance of VHVs and each category of social support, namely: emotional support, informational support and instrumental support. All categories of social support had significantly associated with performance of VHVs. Moreover, all of them showed the same trend that VHVs who had higher level of social support, more likely had high performance.

Table 4.18 Association between Level of Difference Categories of Social Support and Performance of VHVs.

Level of social support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Emotional support					8.810	**0.012***
High	157	59.92	105	40.08	(2)	
Moderate	14	35.00	26	65.00		
Low	7	53.83	6	46.15		

Table 4.18 Association between Level of Difference Categories of Social Support and Performance of VHVs (cont.)

Level of social support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Informational support					7.014	**0.030***
High	146	60.58	95	39.42	(2)	
Moderate	25	42.37	34	57.63		
Low	7	46.67	8	53.33		
Instrumental support					25.511	**<0.001****
High	100	71.94	39	28.06	(2)	
Moderate	12	35.29	22	64.71		
Low	66	46.48	76	53.52		

* p-value < 0.05

** p-value < 0.001

Table 4.19 indicates association between performance of VHVs and each source of social support was divided into five groups, namely: health center staff, district health office staff, family members, local leaders, neighbors, and VHVs' club. The result found that the source of local leaders, neighbors, health center staff and VHVs' club were found significantly associated with performance of VHVs. Most of all sources showed the same trend that VHVs who received higher source of social support, more likely had high performance, only VHVs who received (56.10%) from

family member source, had high performance slightly lower than those who not received (60.71%) from family member source had high performance.

Table 4.19 Association between Source of Social Support and Performance of VHVs

Source of social support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Family members					0.221	0.638
Received	161	56.10	126	43.90	(1)	
Not received	17	60.71	11	39.29		
Local leaders					15.192	**<0.001****
Received	169	60.36	111	39.64	(1)	
Not received	9	25.71	26	74.29		
Neighbors					7.693	**0.006***
Received	164	59.42	112	40.58	(1)	
Not received	14	35.90	25	64.10		
District health office staff					2.469	0.116
Received	160	58.18	115	41.82	(1)	
Not received	18	45.00	22	55.00		

Table 4.19 Association between Source of Social Support and Performance of VHVs (cont.)

Level of categories of source	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Health center staff					16.082	**<0.001****
Received	92	69.70	40	30.30	(1)	
Not received	86	46.99	97	53.01		
VHVs' club					6.872	**0.009***
Received	129	61.72	80	38.28	(1)	
Not received	49	46.23	57	53.77		

* p-value < 0.01

** p-value < 0.001

Table 4.20 shows the association between each emotional support and performance of VHVs. Neighbors praising and local leaders acceptance were found to have significantly associated with performance of VHVs.

With regard to neighbors praising, 59.42 percent of the respondents who had neighbors praising had high performance, and 35.90 percent of those who did not have neighbors praising had high performance (p-value=0.006).

As for local leaders acceptance (60.36%) likely to have more high performance than those (25.71%) who did not have local leaders acceptance (p-value<0.001)

Table 4.20 Association of each Emotional Support and Performance of VHVs

Emotional support	High performance		Low performance		χ^2 (df)	p-value
	(n= 178)	%	(n= 137)	%		
Family members encouraging					0.000	0.983
Yes	169	56.52	130	43.48	(1)	
No	9	56.25	7	43.75		
Family members helping					0.802	0.371
Yes	166	55.89	131	44.11	(1)	
No	12	66.67	6	33.33		
Neighbors praising					7.693	**0.006***
Yes	164	59.42	112	40.58	(1)	
No	14	35.90	25	64.10		
Local leaders acceptance					15.192	**<0.001****
Yes	169	60.36	111	39.64	(1)	
No	9	25.71	26	74.29		

Table 4.20 Association of each Emotional Support and Performance of VHVs (cont.)

Emotional support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Health center staff appreciation					3.755	0.053
Yes	168	58.13	121	41.87	(1)	
No	10	38.46	16	61.54		
VHVs collaboration					3.655	0.056
Yes	174	57.62	128	42.38	(1)	
No	4	30.77	9	69.30		
Health center staff consultation					1.145	0.340
Yes	174	57.05	131	42.95	(1)	
No	4	40	6	60		

* p-value < 0.01

** p-value < 0.001

Table 4.21 shows the association between each informational support and performance of VHVs. The result showed no found to have significantly associated with performance of VHVs. However, most of respondents showed the same trend that those who answered “Yes” in each informational support, more likely had higher performance than those who did not receive any informational support.

Table 4.21 Association of each Informational Support and Performance of VHVs

Informational support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
VHVs advising					2.411	0.120
Yes	171	57.58	126	42.42	(1)	
No	7	38.89	11	61.11		
TB information by VHVs' club					0.413	0.520
Yes	160	57.14	120	42.86	(1)	
No	18	51.43	17	48.57		
TB information by health center staff					0.020	0.888
Yes	167	56.61	128	43.39	(1)	
No	11	55	9	45		
Training by health center staff					0.190	0.663
Yes	166	56.85	126	43.15	(1)	
No	12	52.17	11	47.83		

Table 4.21 Association of each Informational Support and Performance of VHVs (cont.)

Informational support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Training by district health office staff					2.469	0.116
Yes	160	58.18	115	41.82	(1)	
No	18	45	22	55		

Table 4.22 shows the association between each instrumental support and performance of VHVs. Material support by VHVs, Materials support by health center staff, small sputum boxes, and budgets were found to have significantly associated with performance of VHVs.

With regard to materials support by VHVs, 60.98 percent of those who had materials support by VHVs' club had high performance and the lower 40.58 percent of those who did not have materials support by VHVs' club had high performance, and there was significantly associated with performance of VHVs (p-value=0.003).

As for materials by health center staff, among those who had materials support by health center staff was likely to have high performance more than those who did not have materials support by health center staff (p-value=0.034).

Regarding small sputum boxes, 65.20 percent of those who had small sputum boxes had high performance, while 23.08 percent of them who did not have small sputum boxes had high performance (p-value<0.001).

Concerning budgets, 61.70 percent of those who got budgets, they had high performance, while the lower 48.82 percent of them who did not get budgets had high performance (p-value=0.024).

Table 4.22 Association of each Instrumental Support and Performance of VHVs

Instrumental support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Materials support by VHVs					9.121	**0.003****
Yes	150	60.98	96	39.02	(1)	
No	28	40.58	41	59.42		
Materials support by health center staff					4.485	**0.034***
Yes	167	58.39	119	41.61	(1)	
No	11	37.93	18	62.07		
TB screening forms					2.328	0.127
Yes	168	57.73	123	42.27	(1)	
No	10	41.67	14	58.33		

Table 4.22 Association of each Instrumental Support and Performance of VHVs (cont.)

Instrumental support	High performance (n= 178)	%	Low performance (n= 137)	%	χ^2 (df)	p-value
Small sputum boxes					37.245	**<0.001*** **
Yes	163	65.20	87	34.80	(1)	
No	15	23.08	50	76.92		
Budgets					5.119	**0.024***
Yes	116	61.70	72	38.30	(1)	
No	62	48.82	65	51.18		

* p-value < 0.05

** p-value < 0.01

*** p-value < 0.001

CHAPTER V
DISCUSSION

A cross-sectional descriptive study was conducted with VHVs who were working in Mahachanachai district, Yasothon province, Thailand. With regard to the instrument used for data collection was pre-tested before the actual study, and based on the result of Cronbach's alpha by using the Minitab software program, one question was deleted from perception part in order to create more reliability of the questionnaire. In addition, some questions especially, in the knowledge, and attitude part were revised a slight improvement again as to have more reliability, as well as more understandable, and suitable with capacity of VHVs.

The research results showed the performance of VHVs in Mahachanachai district, Yasothon province, and the relationship between performance of VHVs, and socio-demographic characteristics, knowledge, attitude towards performing TB prevention and social support. The results were discussed below.

5.1 Socio-demographic

Age

Concerning age of VHVs, the result showed that there was significantly associated between performance of VHVs and age group. This finding was supported by the study of Tiewsuwan B (27), Kongsap S (32), Nguyen T (29), Piedad V (33), and Thi P (31), showed significant relationship between age group and performance or participation of VHVs.

However, it is difficult to conclude that older age people will always perform better than younger age people, because this result indicated that over 54

years (50.00%) had lower proportion of high performance compared with VHVs of 35 to 44 (60.94%) years and 45 to 54 years (62.50%). It might be that both have advantages and also disadvantages for VHVs' work, young ones might be more vigorous, creative and better education, but did not have enough experience, while old ones tend to have more experience and more influential as well as responsibility, but they might be not vigorous. In addition, age group could be an important factors in determining the performance of VHVs. Hence, VHVs should be mature in age in order to achieve high performance level.

However, as different from some previous studies of Ketsophapong B (24), Jinpeng X (35), showed no significant relationship between age group and performance of VHVs. And also the study of Kaori S (36), found that age group was not significant relationship between age group and performance of peer educators.

Gender

This research identified that female VHVs (83.49%) were five times as numerous as male VHVs (16.51%), and 57.79 percent of female VHVs had high performance, while a slight lower 50.00 percent of male VHVs had high performance. However, there was no significantly associated between gender and performance of VHVs. The distribution of performance found that high performance among females was higher than among males. It might be explained that males had many responsibilities on the job for their family.

As similar to the result of this research, most of previous studies about performance or participation of VHVs did not identify significantly associated between gender and performance or participation of VHVs, conducted by such as the studies of Tiewsuwan B (27), Kongsap S (32), Nguyen T (29), Piedad V (33), Ketsophapong B (24), and Jinpeng X (35), as well as the study of Kaori S (36), found that gender was not significantly related to performance of peer educators.

Marital status

More than 70 percent of all marital status group had high performance on average. The result also found most of VHVs were married, however married group had low performance than those who were single and divorced/widowed/separated group. In addition, there was no significantly associated between marital status and performance of VHVs. The result might be that single and divorced/widowed/ separated groups have least interested in other activities domestic responsibilities and spend more time with their work and home.

As similar to the study of Tiewsuwan B (27), that there was no significantly associated between marital status and performance of VHVs and the study of Tin T(37), showed no significantly related to participation of VHVs.

Education

In this study, there was no significantly associated between education and performance of VHVs. Although, theoretical analysis may accept that VHVs with higher education will be able to perform their job better (51), literacy is not an essential skill for VHVs because capable workers have been trained for every education level (52). It was observed that person that only a few year of schooling often make more reliable and more community strengthening health workers than those who have had more formal education (29).

As similar to the studies of Tiewsuwan B (27), Nguyen T (29), and Thi P (31), found that there was no significantly associated between education and performance of VHVs.

Occupation

Concerning the occupation of VHVs, the majority of the respondents were farmer (97.14%), while trader and laborer accounted only a small proportion. An association between occupation and performance of VHVs could not be found in this study. It might be that every occupation group of VHVs have been working in their community, especially, in the aspect of agricultural. Therefore, it could not be affected

to VHVs performance. This result supported to the studies of Ketsophapong B (24), Nguyen T (29), showed no significantly associated between occupation and performance of VHVs.

Duration of working

The duration of VHVs working was divided into five categories, namely: less than or greater than 5 years, from 5 to 10 years, from 11 to 15 years, from 16 to 20 years and greater than 20 years. This study found no significant association between duration of working and performance of VHVs. Although, one may think that VHVs in health service for a long period have more experience or skill and would be able to complete the tasks more effectively (32). Other may think that it is not good to assign VHVs a task for a long time since the VHVs could become bored and less energetic. But this study was in contrast to some other studies (53), due to the distribution of performance among these group indicated that those who had been working as VHV 16 to 20 years (68.42%) had higher performance than those who (65.71%) had been working as VHV more than 20 years. This result might be due to the effect of frequency of training and supervision received. Those VHVs with more than 20 years experience in VHVs' work may lack of training and supervision, which could result in low performance.

As similar to the previous studies of Ketsophapong B (24), and Nguyen T (29), showed no significantly associated between duration of working and performance of VHVs.

Family monthly income

Concerning to family monthly income of VHVs, the majority (70.48%) of the respondents had family monthly income ranging from 1,000 to 5,000 baht. In this study, there was no significantly associated between family monthly income and performance of VHVs. This contrasts with some studies revealed that rich VHVs tended to be more active or more performance (32). The distribution of performance found that high performance among those who had family monthly income more than 10,000 baht was lower than among those 5,001 to 10,000, 5,001 to 10,000 and less

than 1,000 baht respectively. This study might be that those of VHVs who had high family monthly income tended to concentrate on money earning for their family as agricultural aspects, especially, in the season harvest of their rice in paddy field, most of them usually sent their representing to take part on public health activities, if those who had many lands of paddy field would be taken times longer for their harvesting.

This result agreed with the studies of Nguyen T (29), Tiewsuwan B (27), showed no significantly associated between family monthly income and performance of VHVs.

5.2 Performance of VHVs

The result found that 56.51 percent of the respondents had high performance on TB prevention, while 43.49 percent of them had low performance on TB prevention. When compared among activities, the high proportion of performance (98.73%) was found in advising TB patients and other people to cover their noses and mouths when coughing or sneezing, closely followed by disseminating knowledge about TB to villagers (98.10%) and screening people according to TB criteria by using TB screening forms (97.78%), as well as advising a group of TB suspected cases for TB examination the same as percentage.

The explanation of why slightly over one-half (56.51%) of them had high performance. It can be explained that this strategy had been implemented in Thailand under DOTS program, especially, in the last couple of years, this strategy was considered a highlight policy of ministry of public health (10). Under policy, VHVs must have clearly their specific of job descriptive. In addition, all of them had been trained on TB prevention, particularly, training in 2008. Another reason might be that they were easily to do such advising TB patients to cover their noses and mouths when a coughing or sneezing, even though disseminating knowledge about TB and using TB screening form, most of them quite understanding about TB screening process. But 13.31 percent of respondents that never demonstrated making a sputum collection and

coordinated to health center. The reason might be that some of them were inconvenient in terms of vehicle to coordinate with a health center and make a sputum collection might be unpleasant to demonstration.

Considering the role of VHVs, the role which VHVs performed the most (97.46%) was to advise the group of TB suspected cases for TB examination and sending sputum samples to a health center, followed by reporting the result/number of TB suspected cases to a health center (96.19%), disseminating health education/health information in village (95.74%), active case finding program by using TB screening forms (95.24%) and to coordinate with health center (86.67%). Therefore, this result indicated that more than 85 percent of respondents performed all kinds of roles for TB prevention. It might be that they were quite understand about TB prevention process and concerned to public consciousness of their communities. This is supported by the result of knowledge, it showed that most of respondents had good and moderate knowledge.

By comparing with previous studies, the performance of this study was lower than the study of Kongsap S (32), Nguyen T (29), and Ketsophapong B (24). They showed that the proportion of high performance of VHVs was quite higher than low performance. The difference of the results in this study and the previous ones might be the different on research methodology, disease, as well as the studying area. However, in this study was slightly one-half of percentage of high performance due to some performance have been done just about sometimes as to VHVs works not only in TB prevention activities, but also in many other fields of public health program.

5.3 Psycho-social factors

5.3.1 Knowledge on TB prevention

Slightly over one-half (56.83%) of the respondents had good knowledge level and 39.05 percent had moderate knowledge, only 4.13 percent had poor knowledge. And 59.22 percent of the respondents who had good knowledge had high

performance, while 84.62 percent of respondents who had poor knowledge had high performance. This study found that there was significantly associated between knowledge and performance of VHVs

The result was similar to the finding of some previous studies about performance of VHVs conducted by Ketsophapong B (24), Kongsap S (32), and Nguyen T (29), which found significantly associated between knowledge and performance of VHVs. However, there were some previous studies about performance of VHVs conducted by Tiewsuwan B (27), Yenn R (34), showed no significantly associated between knowledge and performance of VHVs, and also the study of Kaori S (36), showed no significantly associated between knowledge and performance of peer educators.

Considering in details of VHVs' knowledge, it was found that most of the respondents answered correctly with 82.33 percent on average, and they had good knowledge about TB prevention, namely: people prevent from TB by advising TB patients to cover their mouths while coughing (97.14%), preventing TB transmission to others by survey people who have a chronic coughing (94.29%), and TB patients should dispose their sputum properly (92.06%).

However, slightly one-thirds (36.19%) of respondents knew about children under 5 years should do if one of family members is diagnosed with TB. This reason might be that VHVs were not familiar with this process which mostly tended to operate by health personnel and some people in household when one of their family members is diagnosed with TB. Moreover, the respondents might be likely think about the Expand Program Immunization (EPI) when mentioned to children under 5 years had illness.

5.3.2 Perception towards performing TB prevention

The result revealed that 69.84 percent of respondents had high level of perception towards TB prevention, while 30.16 percent of them had moderate perception. Among those who high level, 56.82 percent had high performance. There

was no significantly associated between perception of TB prevention and performance of VHVs.

Dividing perception by benefit of TB prevention and barrier to TB prevention, the great majority (92.70%) of the respondents had high level of benefit peception. With regard to barrier perception of them (66.67%) had moderate level of perception, but 57.19 percent of those who had high level of perception of benefit had high performance, while 47.62 percent of those who had moderate level of perception of benefit had high performance, and 50.00 percent of those who had low level of perception of benefit had high performance. In terms of perception of barrier 48.57 percent of those who had high level of perception of barrier had high performance, while 60.48 percent of those who had moderate level of perception of barrier had high performance. There was found significantly associated between perception of barrier and performance of VHVs, while not found significantly associated between perception of benefit and performance of VHVs.

The outcome of this research was quite found similar to the study of Piedad V (33) studied the relationship between the sense of volunteerism to be VHVs and performance of VHVs. The sense of volunteerism included 6 elements : village love, community appreciation, health center success, ability development, cooperative attitude and volunteering attitude. It was found that there was no significantly associated between the sense of volunteerism and performance of VHVs. In addition, the studies of Wacharakorn (45), and Nitas R.(46) were found no significantly associated between perception and performance of VHVs.

This is also consistent with the study of Tin T. (37), showed that the level of VHVs participation in HIV/AIDS prevention and control activities are tabulated with the level of perception to find out the relationship between the two variables. There was no significant relation at the 0.05 level.

However, as different from some previous studies of Kongsap S (32), Tiewsuwan B (27), showed the perception of Dengue Haemorrhagic Fever prevention

and control, and community primary health care centers were significantly associated with performance of VHVs, and the study of Kaori S (36), showed that perception of HIV/AIDS prevention among high school students and performance of peer educators are found significantly association.

Concerning to benefit perception of TB prevention, the respondents had high level of perception in all statements, particular 52.38 percent of them had strongly agreed that VHVs advising about mask wearing in TB patients and people who have coughing can prevent others get TB. This might be due to VHVs had more concerned the risk of TB which could be transmitted to people directly if without mask wearing, since TB patients still stayed in the same as household as well as in the village.

Comparing the TB program of changing attitude and changing behavior with improving the understanding of people, showed that they had strongly agreed on improving the understanding of people at more percentage than changing attitude and changing behavior (46.98%, 24.44% and 23.81% respectively). This might be that improving the understanding about TB was easiest activity on TB program whereas, changing behavior and changing attitude were accounted to be difficult and may take long time to success.

With regard to barrier towards TB prevention, the reason why the statement about mask wearing for TB prevention getting more uncomfortable to communication had lowest level at strongly agree. It might be that most of VHVs realised mask wearing was able to prevent TB transmission perfectly and more likely did not have any feeling uncomfortable to communication, 21.27 percent of respondents strongly agreed that most people do not awareness to improve good ventilation and keep clean in house. This reason might be that mostly TB patients had been occuring with the ones who were not quite good in quality of life, likely not concerned about good ventilation or keep clean in their houses due to poor living condition. In this situation which was one of key factors beyond VHVs ability to handle this problem.

5.4 Social support

The result showed majority (76.51%) of respondents had high level of social support and a few of them (3.81%) had low level of social support, 62.66 percent of those who had high social support had high performance, 40.32 percent of those who had moderate social support had high performance and 16.67 percent of those who had poor social support had high performance. There was significantly associated between social support and performance of VHVs.

Regarding each category of social support, namely: emotional support, informational support and instrumental support, the respondents had high level of social support. All of them had significantly associated with performance of VHVs. Comparing the proportion of high level among three categories of social support, emotional support was relatively the highest support for respondents (83.17%), followed by informational support (76.51%), and instrumental support (44.13%). These reasons might be that emotional support was accounted to be importance feeling that support by family members, local leaders, neighbors, VHVs' club and health center staff due to VHVs working had been dedicating to their works without any salary. Although, the current government have supported them in monthly reciprocate of 600 baht, but considering still not enough for their family living. Therefore, most of people have more appreciated about VHVs activities and always have intended to admire their capabilities. In addition, emotional support was relatively less expensive quite easier to get it, especially in Thailand culture.

In each category, the respondents got a lot of a consultation from health center staff (96.83%) in emotional support, receiving any advice from VHVs' club (94.29%) in informational support and receiving any materials such as TB screening forms from health center staff (92.38%) at health center. In this result might be that VHVs had often coordinated with health center staff according to their works, particular chief of VHVs in any villages have regularly informed the assignment of primary health care programs.

In terms of categories by source of social support, namely: health center staff, district health office staff, family members, local leaders, neighbors, and VHVs' club. The result found that the source of local leaders, neighbors, health center staff and VHVs' club were found significantly associated with performance of VHVs. Most of these sources showed the same trend that VHVs who had higher level of social support, more likely had high performance. These reasons might be that VHVs were very closely relationship and easily to understand from each other with local leaders, neighbors, health center staff and VHVs' club as well as most people in the village always appreciated on their dedication working in community. The result of this research was quite similar to the study of Tiewsuwan B (27), found social support as a whole significantly associated with satisfactory performance. The study of Kongsap S (32), showed that performance of VHVs was significantly associated with financial support from Tambol Administration Organization (TAO), emotional support from TAO, financial support from health center, labor support from villagers. In addition to that, the results of other previous studies also supported the result of this research, for example, the study of Ketsophapong B (24), showed that there was significantly associated between overall social support and performance of VHVs, the study of Kaori S (36), showed significantly associated between performance of peer educators and each category of social support.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This research aimed to study performance of VHVs on TB prevention in Mahachanachai district, Yasothon province, and its related factors with regard to TB prevention, to describe the independent variables including socio-demographic, psycho-social factors and social support and to indentify the association between the independent variables and performance of VHVs.

The data collection was carried out from January to February, 2010 in 5 sub-districts, in Mahachanachai district, Yasothon province. VHVs were selected by simple random sampling from 10 sub-districts. Data was collected through self-administered questionnaire from 315 VHVs. Those data were analyzed by using the Minitab program. Descriptive was used to describe the distribution of all the variables. In addition, Chi-square test and Fisher's exact test were used to describe the association between the independent and dependent variables. The results of research were shown as follows:

6.1.1 Socio-demographic factors

The results were presented that 83.49 percent of the respondents were females, the great majority (92.70%) of them were married**,** 40.63 percent of them were within the age group 35 to 44 years. Two-thirds (67.30%) of them were graduated at primary education level, and their main occupation was farmer (97.14%). The majority (70.48%) of them had family monthly income ranging from 1,000 to 5,000 baht and average duration of working as VHV was 10 years with 30.48 percent of them had duration of working ≤ 5 years. Among socio-demographic factors, there was only age group found significantly associated with their performance.

6.1.2 Performance of VHVs

The result found that 56.51 percent of the respondents had high performance on TB prevention, while 43.49 percent had low performance**.**

Concerning the roles of VHVs, the role which VHVs performed the most (97.46%) was to advise the group of TB suspected cases for TB examination and sending sputum collection to health center and the least (86.67%) was to coordinate with health center. In addition, more than 85 percent of respondents were proved to perform all kinds of roles on TB prevention.

6.1.3 Psycho-social factors

Slightly over one-half (56.83%) of respondents had good knowledge level about TB prevention, while 4.13 percent of them had poor knowledge. There was significantly associated between knowledge about TB prevention and performance of VHVs. 82.33 percent on average of the respondents answered correctly questions about TB prevention. However, they got relatively the lowest percentage of correctly answered (36.19%) about children under 5 years should do if one family member is diagnosed with TB.

With regard to perception of VHVs, it was found that, slightly over two-thirds (69.84%) of the respondents had high perception towards TB prevention. A significant association was no found with performance of VHVs. Considering to category of perception namely; benefit perception and barrier perception, found that there was only barrier perception significantly associated with performance of VHVs

Comparing between benefit and barrier perception in terms of percentage, benefit perception (92.70%) had a great high perception, while barrier perception (66.70%) had moderate perception.

6.1.4 Social support

The result showed that majority (76.51%) of the respondents had high social support, 19.68 percent had moderate social support, and only 3.81 percent had low social support. A significant association was found between social support and performance of VHVs.

Considering each category of social support, namely: emotional support, informational support and instrumental support. All of them were significantly associated with performance of VHVs. Comparing the proportion of high level among three categories of social support, emotional support, and information support were relatively high support (83.17% and 76.51%, respectively) for the respondents, while instrumental support (44.13%).

With regard to source of social support, namely: health center staff, district health office staff, family members, local leaders, neighbors, and VHVs' club. The result found that the source of local leaders, neighbors, health center staff and VHVs club identified there were significantly associated with performance of VHV. In addition, the respondents received the most support from the family member source regarding TB prevention, while the least support they received came from health center staff source.

6.2 Recommendations

6.2.1 Recommendations for implementation

6.2.1.1 Recommendation for health center staff

The majority finding of this study revealed that performance of VHVs was related to many factors such as knowledge, perception and social support. Based on the finding of this research, the following recommendations were suggested.

Firstly, since the result of the study showed that there was significantly associated between knowledge and performance of VHVs. It would be

recommended that health center staff should encourage VHVs to improve their knowledge about TB prevention by providing a regular refresher training course. The contents of training course should focus more on eliminating TB germs by opening doors/windows in houses during the daytime, especially in houses with a TB patient, providing more knowledge regarding parents who had children under 5 years to take some TB drugs due to likely a chance to get TB if one family member is diagnosed with TB. In addition, giving feedback comments concerning VHVs working, as well as sharing experience with others should be more concerned

Secondly, although the research result identified that perception towards TB prevention no found relationship with performance of VHVs. However, it would be recommended that health center staff should encourage VHVs to have more positive perceptions towards their performing on TB prevention in terms of VHVs capacity on TB prevention program can change behavior of people regarding TB prevention in community by providing regular TB information, and more participation on TB screening program with VHVs in the village.

Thirdly, all categories of social support were found significantly associated with performance of VHVs, while four out of six sources of social support were found significantly associated with performance of VHVs, and the respondents had the most social support in emotional support**.** With regard to source, the respondents received the most support from the family member source regarding TB prevention, while the least support they received from health center staff source. Therefore, it would be recommended that health center staff should encourage more social support to VHVs, such as instrumental support should be paid more attention namely: TB material support and some incentive. On the other hand, the support from health center staff should be more concerned by providing more Information Education Communication (IEC) materials, TB screening forms, small boxes for sputum collection, and some incentive in terms of TB case detection.

6.2.1.2 Recommendation for VHVs' club

The result showed that there was significantly associated between VHVs' club source and performance of VHVs. It would be recommended that VHV's club should focus on supplying more IEC materials, TB information, such as posters leaflets regarding TB prevention to enable VHVs provide effective health education to the target of program, as well as strengthen VHVs with less experience or self-confidence, having more deeply understanding about TB prevention program.

6.2.1.3 Recommendation for local leaders

The result of the study showed that there was significantly associated between local leaders source and performance of VHVs. It would be recommended that local leaders should recognize VHVs as a person who playing an important role in the community, and provide the opportunity to have more performing about TB prevention.

6.2.1.4 Recommendation for neighbors

The result of the study showed that there was significantly associated between neighbor source and performance of VHVs. It would be recommended that neighbors should appreciate VHVs as a dedicated health volunteer who were able to provide the valuable contribution in terms of TB prevention in the village namely: advising health education/health information, launching an active case finding TB program by screening people as TB criteria, and sending sputum samples to a health center, and advising TB suspected cases go to hospital for TB examination.

6.2.2 Recommendations for further research

Firstly, this research was collected only quantitative data through self-administered questionnaire. In order to find out more detail information results about performance of VHVs, therefore qualitative technique including interview and focus group discussion would be required.

Secondly, more independent variables should be added into conceptual framework in order to find out other factors that might be associated with performance of VHVs such as self-efficacy, internal motivation.

Thirdly, in order to develop the performance of VHVs, the study should be conducted in a large area namely: provincial level, regional level. However, conducting in different area should be also concerned due to VHVs who are working in different district or other province might be received another factors which effect their performance.

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APPENDICES

APPENDIX A
QUESTIONNAIRES

PERFORMANCE OF VILLAGE HEALTH VOLUNTEERS ON TB PREVENTION IN MAHACHANACHAI DISTRICT YASOTHON PROVINCE, THAILAND

Date of registration ……./……./……. Registration No. ……/……/…….

This questionnaire is prepared to study the performance of village health volunteers on TB prevention for an MPHM thesis at the ASEAN Institute for Health Development, Mahidol University. I would very much appreciate your participation in this study. Your answer will be kept strictly confidential. Therefore, please feel free to answer the questions. Thank you very much for your assistance.

Part I: Socio-Demographic Factors

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

1. Age……..years old
2. Gender
   [ ] 1. Male [ ] 2. Female
3. What is your present marital status?
   [ ] 1. Single [ ] 3. Widowed [ ] 5. Divorced
   [ ] 2. Married [ ] 4.Separated [ ] 6.Other (specify)……
4. What is your highest education attainment?
   [ ] 1. Primary school [ ] 4. Bachelor degree or higher
   [ ] 2. Secondary school [ ] 5. Other (specify) ……
   [ ] 3. Vocational

5. What is your main occupation?

[ ] 1. Farmer [ ] 4. Laborer

[ ] 2. Trader [ ] 5. Other (specify) ……

[ ] 3. Civil servant

6. How long have you been working as a VHV ? ……years

7. What is your total family income per month? …….baht/month

Part II: Knowledge towards Tuberculosis prevention.

Instruction: Please mark √ in the box [ ] which you think it is the most correct answer to each question.

8. Which one of the following is the most useful suggestion for TB prevention?

[ ] 1. Take a rest enough

[ ] 2. Regular take TB drugs

[ ] 3. Regular exercise

[ ] 4. Have a healthy diet

9. Which one of the following is most easily TB bacilli transmission to others?

[ ] 1. Having a meal together

[ ] 2. Sleeping in the same room

[ ] 3. Coughing/Sneezing without covering the nose/mouth

[ ] 4. Drinking from the same glass

10. Which one of the following is the most correct to prevent TB transmission to others by TB screening program?

[ ] 1. Survey people who have a chronic coughing

[ ] 2. Survey people who have frequently urination

[ ] 3. Survey people who have fever

[ ] 4. Survey people who have lose weight

11. Which is the most important for TB prevention?

[ ] 1. Having X-Ray every year

[ ] 2. Stop smoking

[ ] 3. Send sputum for TB examination if coughing more than 2 weeks

[ ] 4. Send sputum for TB examination when start coughing 1-2 days

2. Which one of the following that TB patients should do in order to prevent TB transmission to others?

[ ] 1. Take a bath at least 2 times a day

[ ] 2. Properly disposal his/her sputum

[ ] 3. Regular washing hand

[ ] 4. Stop working

13. Who are the most likely to become infected with TB if one member of your family got TB last month?

[ ] 1.People living in the same household

[ ] 2. Neighbors

[ ] 3. Relatives but living in another household

[ ] 4. People living in the same village

14. Which one of main symptoms of people who need to go to hospital for TB examination in order to prevent TB spread out?

[ ] 1. Night sweats, chest pain, frequently urination

[ ] 2. Chronic cough > 2 weeks, mild fever in the evening, night sweats

[ ] 3. Chronic cough > 2 weeks, chest pain, frequently urination

[ ] 4. High fever, night sweats, shortness of breath

15. Why is TB program have to screen in chronic disease group such as DM?

[ ] 1. Likely a chance to get TB

[ ] 2. Easy for TB screening

[ ] 3. Because most of them are elderly

[ ] 4. Because most of them are men

16. How do people prevent infection from TB?

[ ] 1. Advise TB patients to cover their mouths while coughing

[ ] 2. Advise TB patients to move to another village

[ ] 3. Advise TB patients live alone

[ ] 4. Advise TB patients to take anti-cough drugs

17. How can people in their household do for preventing TB?

[ ] 1. Keep their clothes clean regularly

[ ] 2. Cover mouths while coughing

[ ] 3. Keep good ventilation

[ ] 4. All of the above

18.Which one of the following need to do in children under 5 years if one family member is diagnosed with TB?

[ ] 1. Need to take some TB drugs

[ ] 2. Need to get some vaccination

[ ] 3. Need to admit in the hospital

[ ] 4. Need to send sputum for TB examination

19. Why do we have to open doors/windows in the day time if we stay in the same household as a TB patient?

[ ] 1. To convenience

[ ] 2. To have a good atmosphere

[ ] 3. To eliminate TB germs

[ ] 4. To look for TB germs

20. What is the best thing for a patient can use to prevent TB Bacilli transmission to others?

[ ] 1.Blanket

[ ] 2. Towel

[ ] 3. Mask

[ ] 4. Glass

21.What do TB germs likely mixed with?

[ ] 1. Saliva

[ ] 2. Sputum

[ ] 3. Blood

[ ] 4. Nose mucus

Part III: Perception towards performing TB prevention

Instruction: Please mark √ in the column that most closely corresponds to your idea.

No	Statement	SA	A	Un	D	SD
22.	VHVs performing on TB health education can improve more understanding of people on TB prevention.					
23.	VHVs performing on TB program can contribute to reduce the risk of TB infection in community.					
24.	VHVs performing on TB program provide opportunity for people to have more surveillance about TB prevention in community.					
25.	VHVs performing on TB program can change behavior of people on TB prevention in community.					
26.	VHVs launching on TB program can detect TB case earlier in community.					
27.	VHVs performing on TB program can change attitude of people on TB prevention in community.					
28.	VHVs performing on TB program can reduce number of TB case, especially, new TB patient.					
29.	VHVs advising about mask wearing in TB patients and people who have coughing can prevent other people get TB infection.					

No	Statement	SA	A	Un	D	SD
30.	VHVs advising about sputum collection in people with a cough more than 2 weeks need to have sending sputum for TB examination in hospital can break TB germs transmission to others.					
31.	VHVs performing on health education for TB program will add more VHVs workload.					
32.	VHVs will likely a chance to get TB infection during working on TB prevention program.					
33.	Mask wearing for TB prevention getting more uncomfortable to communication.					
34.	VHVs did not have any support on TB screening program.					
35.	Working on TB screening cannot cover all TB suspected cases.					
36.	Most people do not awareness and cooperate to prevent TB in community.					
37.	Uncomfortable to wake up in early morning to collect sputum with TB suspected cases for sending TB examination in hospital.					
38.	Most people do not awareness to improve good ventilation and keep clean in house.					

SA=Strongly agree, A= Agree, Un= Uncertain, D= Disagree, SD= Strongly disagree

Part IV: Social support factors

Instruction: Please mark √ in the box [ ] according to what your experience

Emotional support

39. Does your family members encourage you to work as a VHV on TB prevention?
[ ] 1. Yes [ ] 2. No
40. Does your family members help you to do household work or take care of children while you are working on TB prevention?
[ ] 1. Yes [ ] 2. No
41. Have you ever received any praise from neighbors?
[ ] 1. Yes [ ] 2. No
42. Have you ever received any acceptance from local leaders towards performing TB prevention in the village?
[ ] 1. Yes [ ] 2. No
43. Have you ever received any appreciation from health center staff on TB prevention?
[ ] 1. Yes [ ] 2. No
44. Have you ever received any collaboration and support about TB prevention from VHVs' club?
[ ] 1. Yes [ ] 2. No
45. When you have problems in your work, have you ever received a consultations from health center staff?
[ ] 1. Yes [ ] 2. No

Informational support

46. Have you ever received any advice from VHVs' club to perform TB prevention in the village?
[ ] 1. Yes [ ] 2. No
47. Have you ever received TB information, namely: any posters, leaflets from VHVs' club?
[ ] 1. Yes [ ] 2. No

48. Have you ever received TB information from health center staff to support your performing towards TB prevention in the village?

[ ] 1. Yes [ ] 2. No

49. Have you ever trained about TB prevention from health center staff?

[ ] 1. Yes [ ] 2. No

50. Have you ever trained about TB prevention from district health office staff ?

[ ] 1. Yes [ ] 2. No

Instrumental support

51. Have you ever received any materials such as some stationery from the VHVs' club about performing TB prevention in the village?

[ ] 1. Yes [ ] 2. No

52. Have you ever received any IEC materials such as posters, leaflets etc. for your work from health center staff?

[ ] 1. Yes [ ] 2. No

53. Have you ever received any materials such as TB screening forms for TB screening from health center staff?

[ ] 1. Yes [ ] 2. No

54. Have you ever received any materials such as small sputum boxes for sputum collection from health center staff?

[ ] 1. Yes [ ] 2. No

55. Have you ever received any special budgets or incentives from staff at health center after you detected TB cases in your area responsibility?

[ ] 1. Yes [ ] 2. No

Part V: Performance of VHVs on TB prevention

Instruction: Please mark √ in the box [ ] which corresponds your practice.

No	Statements	Always	Some-times	Never
56.	Have you ever disseminated knowledge about TB to the villagers?			
57.	Have you ever advised any person suspected to have TB to see health personnel or a doctor for TB examination?			
58.	Have you ever advised patients and other people to cover their noses, mouths when a coughing or sneezing?			
59.	Have you ever advised people to keep houses clean, have good ventilation by opening doors or windows in houses during the daytime, especially in households with a TB patient?			
60.	Have you ever advised TB patients and people to spit properly as well as to dispose of sputum correctly?			
61.	Have you ever demonstrated wearing masks to patients and people?			
62.	Have you ever demonstrated making a sputum collection to TB suspects?			
63.	Have you ever participated in active case finding programs with other VHVs in the village?			
64.	Have you ever screened people according to TB criteria by using TB screening form in every households in your area responsibility?			
65.	Have you ever discussed with villagers about TB prevention in communities?			

No	Statements	Always	Some-times	Never
66.	Have you ever coordinated with health center staff to get TB materials support?			
67.	Have you ever advised people who have chronic diseases such as DM to send sputum for TB examination?			
68.	Have you ever reported the number of TB suspected cases to a health center staff?			
69.	Have you ever advised a group of TB suspected cases to go to hospital for TB examination?			
70.	Have you ever advised a group of TB suspected cases to send sputum samples to a health center?			

Thank you for your answers and cooperation

APPENDIX B

Table 4.23 Percentage on Average of Roles of Performance, Knowledge and Social Support

Variables	Average
1. Roles of performance	94.26
2. Knowledge	82.33
3. Social support	
-Emotional	92.88
-Informational	91.36
-Instrumental	80.06

Table 4.24 Percentage on Average of Benefit and Barrier Perception

Perception	Average				
	SA (%)	A (%)	Un (%)	D (%)	SD (%)
Benefit	39.22	52.94	5.68	1.20	0.96
Barrier	10.72	34.28	13.57	35.04	6.39

BIOGRAPHY

NAME	Nopporn Rakwong
DATE OF BIRTH	August 25, 1972
PLACE OF BIRTH	Yasothon Province, Thailand
INSTITUTION ATTENDED	Sukhothai Thammathirat Open University, 1997 Bachelor of Public Health 1994-1997 Mahidol University, Thailand Master of Primary Health Care Management 2009-2010
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