

**YANGON UNIVERSITY OF ECONOMICS  
MASTER OF DEVELOPMENT STUDIES PROGRAMME**

**A STUDY ON KNOWLEDGE, ATTITUDE AND  
PRACTICE (KAP) TOWARDS TUBERCULOSIS (TB)  
(A CASE STUDY IN THINGANGYUN TOWNSHIP,  
YANGON REGION)**

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PRACTICE (KAP) TOWARDS TUBERCULOSIS (TB)  
(A CASE STUDY IN THINGANGYUN TOWNSHIP,  
YANGON REGION)**

A thesis submitted in fulfillment towards the requirement for the degree of  
Master of Development Studies Programme

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This is to certify that thesis entitled "**A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) TOWARDS TUBERCULOSIS (TB) (A CASE STUDY IN THINGANGYUN TOWNSHIP, YANGON REGION)**" Submitted as a partial fulfillment of the requirements for the Degree of Master of Development Studies (MDevS) has been accepted by the Board of Examiners.

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## **ABSTRACT**

This study focus on the access of socio-demographic characteristics, knowledge, attitude, practice and pathway analysis among the local communities in Thingyangyun Township, Yangon Region. This study used descriptive method and face-to-face interviews by using structured questionnaires were used for analysis. Over 70% of the respondents were aware of TB and MDR-TB. Due to high level of education, nearly 80% of respondents had satisfactory level of knowledge, attitude, and practice and also on pathway health seeking analysis. However over 20% are under satisfactory due to wrong ideas, lack of knowledge should be enlightened. Nationwide stronger study designs, Health Education and as well as, utilizing Social Media to enlighten the interest of communities. Implementing these evidences in necessity area in Myanmar, escape from being from TB high-burden country in the world.

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## LIST OF ABBREVIATIONS

AFB	Acid Fast Bacilli
ART	Anti-Retro viral Therapy
BCG	<i>Bacillus</i> Calmette- Guerin vaccine
DGP	Gross Domestic Product
DOTS	Directly Observed Treatment Short Course
EPTB	Extra-Pulmonary Tuberculosis
HIV	Human Immunodeficiency Virus
KAP	Knowledge, Attitude and Practice
MDRTB	Multidrug-Resistant Tuberculosis
MHDS	Myanmar Demographic and Health Survey
MT	<i>Mycobacterium tuberculosis</i>
NTP	National Tuberculosis Program
PTB	Pulmonary Tuberculosis
RIF	Rifampicin
RR TB	Rifampicin Resistant Tuberculosis
SDG	Sustainable Development Goals
TB	Tuberculosis
WHO	World Health Organization
XDR TB	Extensively Resistant Tuberculosis

# CHAPTER I

## INTRODUCTION

### 1.1 Rationale of the Study

Tuberculosis (TB) is the leading communicable disease among the ten causes of global mortality and it is caused by various strains of bacteria called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs, but they can also damage the other parts of the body. Due to its air-borne transmission as the primary mode of transmission, TB has become the disease of community concern for Myanmar. (James McIntosh, 2018)

Proper research is needed to explore the knowledge of the community members on TB. In 2018, World Health Organization (WHO) estimated 1.2 million deaths (range, 1.2-1.3 million) among HIV-negative people and there were an additional 251 000 deaths from TB (range, 224 000 – 280 000) among HIV- positive people. Globally the estimate is that 10 million people (range, 8.9 – 11.1 million) developed TB disease in 2018: 6.3 million men, 3.7 million women and 1.1 million children. There were cases in all countries and age groups, but overall 90% were adults (aged  $\geq 15$  years), 9% were people living with HIV (72% in Africa) and two thirds were in eight countries: India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (5%), Nigeria (4%), Bangladesh (4%) and South Africa (3%). The severity of national epidemics varies widely among countries. In 2017, there were fewer than 10 new cases per 100 000 population in most high-income countries and 150-400 in most 30 high TB burden which Myanmar is included. (Global Tuberculosis Report 2017)

Myanmar is included in all three categories of TB high-burden countries in the world: TB, multidrug-resistant TB (MDR-TB), and TB/HIV. In 2018, mortality (excludes HIV + TB) is 39 per 100,000 population. Estimated percentage of new TB cases with MDR/rifampicin-resistant TB (RR-TB) was 4.9%, of previously treated TB cases 20%. Estimated number of MDR/RR-TB cases among notified pulmonary TB cases was 11 000.(Global Tuberculosis Report 2019)

According to Myanmar Demographic and Health Survey (MDHS) 2015-16, more than 9 in 10 women and men aged 15-49 have heard of TB. But tuberculosis is curable when patients take sufficient uninterrupted therapy. Regular taking of drugs is the most important in the treatment of tuberculosis. Effective treatment of tuberculosis requires at least six months treatment with combination of drugs. To improve treatment adherence and cure rates, direct observed therapy is recommended for the treatment of tuberculosis. And it is essential to detect the rate of adherence of anti-tuberculosis medications so that patients who are at risk for non-compliance can be identified and promoting intervention can be implemented.

Public awareness of tuberculosis plays an important role in disease control. Lack of TB awareness, along with delay in early diagnosis and insufficient health service resources, has been associated with low TB detection rates and the interruption of TB treatment as well as delay in early in TB diagnosis. In contrast, better public awareness of TB could promote patient detection, early diagnosis and treatment completion.

Tuberculosis is easily infectious disease but treatable. If one person is infected with Tuberculosis, there may be impact on social and economic of the country. If one person is not taken complete treatment of TB, it can lead to occurrence of MDR-TB and XDR-TB.

Ministry of Health and Sports in Myanmar provides preventive and curative services for TB. Although there were varieties of control programs and acceptable recent achievement, Tuberculosis knowledge of the community is still low especially in correct treatment. So, Tuberculosis cannot be controlled by health sector alone, public awareness plays an important role.(Global Tuberculosis Report 2017).

Above these reason, this study will find out the awareness of people in response to their knowledge, attitude and practice for Tuberculosis in Township level. Thingangyun Township under Yangon Region was chosen as the study area to generate sufficient information of Tuberculosis.

## **1.2 Objectives of the Study**

The objectives of this study are to explore the knowledge about Tuberculosis and to access the attitude and behavioral practice of Tuberculosis to the citizens at Township level in Myanmar.

### **1.3 Method of Study**

The method of the study is reviewing on secondary data and descriptive study by using mixed method. Descriptive method is used in this study which involves the structured questionnaires survey, systematic data collection and presentation of primary data from survey. The primary data was collected from the individual face to face interviewed information from the key person in Thingangyun Township under Yangon Region. Secondary data are collected from different public reports, internet websites. The main sources of data are from Ministry of Health and Sports and World Health Organization (WHO).

### **1.4 Scope and Limitation of the Study**

This study is to explore the public awareness concerning about Tuberculosis among 450 people, of age 15-65 years who are living in 4 out of 14 main quarters of Thingangyun Township under Yangon Region. This study contacted the face to face interview with TB Respondents and Non-TB Respondents with multi-level education. According to scattering place of TB patients, it is difficult to interview directly with them for data collection. The questionnaire was designed based on questions and answers published by the Ministry of Health and Sports of Myanmar. The structured questionnaire composed of four main sectors; socio-demographic factors, knowledge about TB, behavioral practice about TB and Pathway analysis. The other areas apart from Thingangyun are not studied in the study.

### **1.5 Organization of the Study**

This study is organized into five chapters. Chapter (1) is the introductory chapter which includes outlines of rationale, objectives, scope, method and limitation of the study. Chapter (2) concerns with the literature review of the Tuberculosis. Chapter (3) explores Tuberculosis Situation in Myanmar. Chapter (4) describes the analysis on knowledge, attitudes and practice towards tuberculosis in Thingangyun Township under Yangon Region and finally concludes with Chapter (5) which includes findings, and recommendations.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Background Knowledge of Tuberculosis**

Tuberculosis (TB) is a infectious disease, due to *Mycobacterium tuberculosis* (MT) that has always been a permanent challenge over the course of human history, because of its severe social implications, it has been hypothesized that the genus *Mycobacterium* originated more than 150 million years ago. In the middle Ages, scrofula, a disease affecting cervical lymph nodes, was described as a new clinical form of TB. The illness was known in England and France as “king’s evil”, and it was widely believed that persons affected could heal after a royal touch.

In 1720, for the first time, the infectious origin of TB was conjectured by the English physician Benjamin Marten, while the first successful remedy against TB was the introduction of the sanatorium cure. The famous scientist Robert Koch was able to isolate the tubercle bacillus and presented this extraordinary result to the society of Physiology in Berlin on 24 March 1882. In the decades following this discovery, the Pirquet and Mantoux tuberculin skin tests, Albert Calmette and Camille Guerin BCG vaccine, Selman Waksman streptomycin and other anti-tuberculous drugs were developed. (J Prev Med Hyg. 2017 Mar)

Tuberculosis (TB) is a contagious, infectious disease, due to *Mycobacterium tuberculosis* (MT), which usually lasts throughout the life course and determines the formation of tubercles in different parts of the body. MT has very ancient origins: it has survived over 70,000 years and it currently infects nearly 2 billion people worldwide ; with around 10.4 million new cases of TB each year, almost one third of the world’s population are carriers of the TB bacillus and are at risk for developing active disease.

Tuberculosis has always been associated with a high mortality rate over the centuries, and also nowadays, it is estimated to be responsible for 1.4 million TB deaths, among infectious diseases after human immunodeficiency virus (HIV). (The World Bank; 2017)

Due to its infectious nature, complex immunological response, chronic progression and the need for long-term treatment, TB has always been a major health burden; in more recent years, the appearance of multi-drug resistant forms and the current TB-HIV epidemic, associated with its severe social implications, treating and preventing TB have represented a permanent challenge over the course of human history.

## **2.1 Types of Tuberculosis**

There can be classified three types of TB into the following ways.

The first type is known as Latent TB infection. Persons with latent TB infection do not feel sick and do not have any symptoms. They are infected *Mycobacterium tuberculosis*, but do not have TB disease. The only sign of TB infection is a positive reaction to the tuberculin skin test or TB blood test. Persons with latent TB infection are not infectious and cannot spread TB infection to others. (CDC TB Report)

The second type is known as Presumptive TB which refers to a patient who presents symptoms or signs suggestive of TB (previously known as a TB suspect).

The third type is well-known as TB Case or TB Disease in community. It can be sub-classified into four groups in the following ways; according to bacteriological confirmed, according to sites of infection, according to previous history of TB treatment and according to co-infection with HIV status.

### **(a) According to bacteriological confirmed**

It can be sub-classified into two groups namely bacteriologically confirmed TB and clinically diagnosed TB. A bacteriological confirmed TB case is one from whom a biological specimen is positive by smear microscopy, culture or WHO-approved rapid diagnostics (such as Xpert MTB/RIF). All such cases should be notified, regardless of whether TB treatment has started. A clinically diagnosed TB case is one who does not fulfil the criteria for bacteriological confirmation but who has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient a full course of TB treatment. This definition includes cases diagnosed on the basis of X-rays abnormalities or suggestive histology and extra-pulmonary cases without laboratory confirmation. (Childhood TB Guideline, WHO 2014)



Clinically diagnosed cases subsequently found to be bacteriologically positive (before or after starting treatment) TB drugs should be reclassified as bacteriologically confirmed. Whether bacteriologically confirmed or clinically diagnosed TB, it can be reclassified into drug sensitive TB and drug resistant TB depending to treatment response.

Drug Sensitive TB means, if someone infected with TB bacteria that are fully susceptible, it means that all of the TB drugs will be effective so long as they are taken properly. It still means that several drugs need to be taken to provide effective TB treatment. Drug Resistant TB means, the bacteria that cause TB can develop resistance to the antimicrobial drugs used to cure the disease. Multidrug-resistant TB is TB that does not respond to at least isoniazid and rifampicin, the two most powerful anti-TB drugs.

#### **(b) According to sites of infection**

It can be sub-classified into two types namely pulmonary TB and extra-pulmonary TB. Pulmonary TB refers to any bacteriologically confirmed or clinically diagnosed case of TB involving the lung parenchyma or the tracheobronchial tree.

Military TB is classified as pulmonary TB because there are lesions in the lungs. Tuberculosis intrathoracic lymphadenopathy (mediastinal and/or hilar) or tuberculosis pleural effusion, without radiographic abnormalities in the lungs, constitutes a case of extra-pulmonary TB, A patient with both pulmonary and extra-pulmonary TB should be classified as a case of PTB. (Treatment TB Guideline 2014, WHO)

Extra-pulmonary TB-EPTB refers to any bacteriologically confirmed or clinically diagnosed case of TB involving organs other than the lungs, e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints, and bones and meninges.

#### **(c) According to previous history of TB treatment**

It can be classified into new TB and previously treated TB. Classification based on history of previous TB treatment are slightly different. New TB means that new patients who have never been treated for TB or have taken anti-TB drugs for less than one month. Previously treated TB means that the patients who have received one month or more of anti-TB drugs in the past.

They are further classified by the outcome of their most recent course of

treatment as relapse patient, treatment after failure and treatment after loss to follow up patients. Relapse patients are those who have previously been treated for TB, were declared cured or treatment completed at the end of their recent course of treatment and are now diagnosed with a recurrent episode of TB (either a true relapse or a new episode of TB caused by reinfection).

Treatment after failure patients are those who have previously been treated for TB and whose treatment failed at the end of their most recent course of treatment. Treatment after loss to follow up patients have previously been treated for TB and were declared lost of follow up at the end of treatment. (Those were previously known as treatment after default patients). Other previously treated patients are those who have previously been treated for TB but whose outcome after their most recent course of treatment is unknown or undocumented. Patient with unknown previous TB treatment history do not fit into any of the categories above. New and relapse cases of TB are incident TB cases. (Treatment TB Guideline 2014, WHO)

**(d) According to co-infection with HIV**

It can be sub-classified into three groups namely HIV positive TB, HIV negative TB and HIV unknown TB. HIV positive TB refers to any bacteriologically confirmed or clinically diagnosed case of TB who has a positive result from HIV testing conducted at the time of TB diagnosis or other documented evidence of enrolment in the pre-ART register or in the ART register once ART has been started.

HIV negative TB refers to any bacteriologically confirmed or clinically diagnosed case of TB who has a negative result from HIV testing conducted at the time of TB diagnosis. Any HIV-negative TB patient subsequently found to be HIV-positive should be reclassified accordingly.

HIV unknown TB refers to any bacteriologically confirmed or clinically diagnosed case of TB who has no result of HIV testing and no other documented evidence of enrolment in HIV care. If the HIV status is subsequently determined, the patient should be reclassified accordingly.

### **2.3 Overview of Tuberculosis Related with Causes, Treatment and Preventive Measures**

TB is an airborne disease caused by the bacterium *Mycobacterium Tuberculosis*(*M. tuberculosis*). It comprise as *M. tuberculosis* complex namely *Mycobacterium tuberculosis* and seven very closely related mycobacterial species (*M. bovis*, *M. africanu*, *M. microti*, *M caprae*, *M. pinniedii*, *M canetti* and *M. mungi*). Most, but not all, of these species have been found to cause disease in humans. In the United States, the majority of TB cases are caused by *M. tuberculosis*, organisms are also called tubercle bacilli.

Tuberculosis is curable and preventable. TB is spread from person to person through the air. When people with lung TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected. About one-third of the world's population has latent TB, which means people have been infected by TB bacteria about are not (yet) ill with disease and cannot transmit the disease. *M. tuberculosis* carried in airborne particles, called droplet nuclei, of 1-5 microns in diameter. (WHO Global TB 2017, WHO)

Infectious droplet are generated when persons who have pulmonary or laryngeal TB disease cough, sneeze, shout, or sing. Depending on the environment, these tiny particles can remain suspended in the air for several hours. *M. tuberculosis* transmitted through the air, not by surface contact. Transmission occurs when a person inhales droplet nuclei containing *M. tuberculosis*, and the droplet nuclei traverse the mouth or nasal passages, upper respiratory tract, and bronchi to reach the alveoli of the lungs.

People infected with TB bacteria have a lifetime risk of falling ill with TB of 10%. However persons with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a much higher risk of falling ill. TB is an infectious disease caused by bacteria via air borne, it may be preventable and curable. Preventive measures such as BCG vaccination, avoiding overcrowded areas, cough with cover, healthy life style are also important for transmission of TB. Systematic and effective treatment are also needed for curable of TB.

### **2.3.1 Mode of Transmission of TB**

Main mode of transmission of TB is air borne, spread from person to person through the air. When people with pulmonary TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected.

Tuberculosis is not be infected by sharing feeding materials, through body contact or sharing cloths. About one-third of the world's population has latent TB, which mean people have been infected by TB bacteria but are not (yet) ill with disease and cannot transmit the disease. (Global TB report 2019)

### **2.3.2 Commonly Infected Person for TB**

People infected with TB bacteria have a lifetime risk of falling ill with TB of 10%. However persons with compromised immune systems, have a much higher risk of falling ill. These factors are;

- People living with HIV,
- Malnutrition or diabetes,
- People who use tobacco or drink alcohol,
- Extreme old age or under five year old children,
- Low socio-economic status
- Poor lightening and poor ventilation

### **2.3.3 Signs and Symptoms of TB**

Although the signs and symptoms will be different according to the disease For extra-pulmonary TB, the main symptoms of TB are

- Persistent Cough for 2 or more weeks
- Cough with sputum or blood
- Fever especially evening rise in Temperature, Night sweating
- Loss of weigh, Loss of appetite

For Childhood TB, the symptoms are not specific. There may be prolonged fever, loss of appetite, loss of weight, malaise, easily fatigue, and irritability. We can diagnose as childhood TB if two of the following symptoms have developed.

- If fever more than two weeks
- If cough more than three weeks

- No increase in weight or weight loss
- Contact TB person among family or neighbor

When a person develops active TB (disease), the symptoms (Cough, fever, night sweats, weight loss etc.) may be for many months. This can lead to delays in seeking care, and results in transmission of the bacteria to others. People ill with TB can infect up to 10-15 other people through close contact over the course of a year. Without proper treatment, up to two thirds of people ill with TB will die.

#### **2.3.4 Diagnosis and Treatment of TB**

Clinical and laboratory investigations are needed for the diagnosis for TB. There are two main Investigations needed for TB diagnosis. These are

- Tuberculin skin testing (Mantoux testing) -TB skin test is performed by injecting a small amount of fluid (called tuberculin) into the skin on the lower part of the arm. A person given the tuberculin skin test must return with 48 to 72 hours to have a trained health care worker look for a reaction on the arm. The result depends on the size of the raised, hard area or swelling. The TB skin test is the preferred TB test for children under the age of five.
- Chest X'ray – A chest x-ray can show damage in lungs, but it might need further tests to prove for TB, such as sputum, culture test or scans. In active pulmonary TB, infiltrates or consolidations and/ or cavities are often seen in the upper lungs with or without mediastinal or hilar lymphadenopathy.

The followings are other Investigations needed for TB diagnosis

- Computed Tomography
- Ultrasound & magnetic resonance
- Fluid and secretion analysis
- Biopsy
- Serology
- Diagnostic Microbiology (Laboratory Diagnosis)

Since 2000, 53 million lives have been saved through effective diagnosis and treatment. Active, drug-sensitive TB disease is treated with a standard 6-month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer. The vast majority of TB cases

can be cured when medicines are provided and taken properly. (Treatment TB Guideline 2014, WHO)

Treatment of Tuberculosis is completely curable directly observed short-course therapy including two phases namely intensive phase and continuation phase. Treating TB cases who are sputum-smear positive (and who can therefore spread the disease to others) at the source, it is the most effective means of eliminating TB from a population.

DOTs or Directly Observed Treatment Short course is the internationally recommended strategy for TB control that been recognized as a highly efficient and cost-effective strategy. DOTS comprises five components;

- Sustained political and financial commitment. TB can be cured and Epidemic reversed if adequate resources and administrative support for TB control are provided.
- Diagnosis by quality ensured sputum-smear microscopy. Chest symptomatic examined this way helps to reliably find infectious patients.
- Standardized short-course anti-TB treatment given under direct and supportive observation (DOT). Helps to ensure the right drugs are taken at the right time for the full duration of treatment.
- A regular, uninterrupted supply of high quality anti-TB drugs. Ensure that a credible national TB program does not have to turn anyone away.
- Standardized recording and reporting. Helps to keep track of each individual patient and to monitor overall programme performance. (Treatment TB Guideline 2014, WHO)

### **2.3.5 Side Effects of Anti TB Drugs**

It can be classified into minor and major adverse effects. Minor adverse effects include nausea, vomiting, epigastria pain, increased liver enzymes, arthralgia, changes in behavior such as headache, insomnia, euphoria, agitation, anxiety, somnolence, acne, cutaneous pruritus and fever. Major adverse effects include psychotic such as, convulsion, seizures, mental confusion and coma, hematological alterations or vasculitis, peripheral neuropathy, clinical hepatitis. (CDC Report)

Other are dizziness, tinnitus, reduced hearing capacity and vision, hypersensitivity rash, orange-colored urine, drug induced hepatitis and yellowish

discoloration of skin and sclera. If one of the side effects of drugs occurred, the patient should consult with health care providers without stopping any drugs byself.

## 2.4 Global Strategy and Targets for Tuberculosis Prevention, Care and Control after 2015

The END TB Strategy – The Global strategy and targets for tuberculosis prevention, care and control after 2015, were endorsed by all member states at the 2014 world health assembly. It’s Vision – A world free of tuberculosis (zero deaths, disease and suffering due to tuberculosis) and Goal-End the global tuberculosis epidemic.

**Table (2.1) Targets for Global End TB Strategy**

INDICATORS	TARGETS	
	SDG 2030	END TB 2035
Reduction in number of TB deaths compared with 2015 (%)	90%	95%
Reduction in TB incidence rate compared with 2015 (%)	80% (<20/100 000)	90% (<10/100 000)
TB-affected families facing catastrophic cost due to TB (%)	Zero	Zero

Source: WHO

### 2.4.1 Principles of Global Strategy and Targets for Tuberculosis

There are four principles of global strategy and targets for Tuberculosis.

- Government stewardship and accountability, with monitoring and evaluation.
- Strong coalition with civil society organizations and communities.
- Protection and promotion of human rights, ethics and equity.
- Adaptation of the strategy and targets at country level, with global collaboration.

## **2.4.2 Pillars and Components of Global Strategy and Targets for Tuberculosis**

There are three pillars and components of global strategy and targets for TB.

### **(i) Integrated, patient-centered care and prevention**

- Early diagnosis of tuberculosis including universal drug-susceptibility testing, and systematic screening of contacts and high-risk groups.
- Treatment of all people with tuberculosis including drug-resistant tuberculosis, and patient support.
- Collaborative tuberculosis / HIV activities and management of co-morbidities.
- Preventive treatment of persons at high risk, and vaccination against tuberculosis.

### **(ii) Bold Policies and supportive systems**

- Political commitment with adequate resource for tuberculosis care and prevention.
- Engagement of communities, civil society organizations, and public and private care providers.
- Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control.
- Social protection, poverty alleviation and actions on other determinants of tuberculosis.

### **(ii) Intensified research and innovation**

- Discovery, development and rapid uptake of new tools, interventions and strategies.
- Research to optimize implementation and impact, and promote innovations.

## **2.4.3 Ending the TB Epidemic**

Ending the global TB epidemic is feasible with dramatic decline in TB deaths and cases, and elimination of economic and social burden of TB. Failure to do so will carry serious individual and global public health consequences. Achievement of this goal by 2035 requires;

- Expanding the scope and reach of interventions for TB care and prevention, with a focus on high-impact, integrated and patient-centered approaches.
- Eliciting full benefits of health and development policies and systems,



through engaging a much wider set of collaborators across government, communities and the private sector.

- Pursuing new scientific knowledge and innovations that can dramatically change TB prevention and care.
- To ensure full impact, these actions must build on principles of government stewardship, engagement of civil society, human rights and equity, and adaptation to the unique context of diverse epidemics and settings. (End TB Strategy, WHO 2015)

## **2.5 The Use of Knowledge, Attitude and Practice (KAP) Survey**

A knowledge, Attitude and Practice (KAP) survey is a quantitative method (predefined questions formatted in standardized questionnaires) that provides access to quantitative and qualitative information. KAP surveys reveal misconceptions or misunderstandings that may represent obstacles to the activities that we would like to implement and potential barriers to behaviors change. (KAP, USAID)

The KAP survey tradition was first born in the field of family planning and population studies in the 1950s. KAP surveys were designed to measure the extent to which an obvious hostility to the idea and organization of family planning existed among different populations, and to provide information on the knowledge, attitudes and practices in family planning that could be used for programme purpose.

The attractiveness of KAP surveys is attributable to characteristics such as an easy design, quantifiable data, ease of interpretation and concise presentation of results, generalizability of small sample results to a wider population, cross-cultural comparability, speed of implementation and the ease with which one can train numerator.

In KAP surveys, the knowledge part is normally used to assess the extend of community knowledge about public health concepts related to national and international public health programmes. Knowledge generally defined as human faculty resulting from interpreted information; understanding that germinates from combination of data, information; understanding that germinates from combination of data, information, experience, and individual interpretation. (KAP, USAID)

In an organizational context, knowledge is the sum of what is known and resides in the intelligence and the competence of people. Knowledge can refer to a

theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); it can be more or less formal or systematic.

Measuring attitudes is the second part of a standard KAP survey questionnaire. However, many KAP studies do not present results regarding attitudes, probably because of the substantial risk of falsely generalizing the opinions and attitudes of a particular group. Furthermore, attitudes are interlinked with the person's knowledge, beliefs, emotions, and values, and they are either positive or negative. Practices or behaviors are the observable actions of an individual in response to a stimulus. This is something that deals with the concrete, with actions.

A KAP survey can Measure the extent of a known situation; confirm or disprove a hypothesis; provide new tangents of a situation's reality. It enhances the knowledge, attitude, and practices of specific themes; identify what is known and done about various health-related subjects. Moreover, it can also establish the baseline for use in future assessments and help measure that effectiveness of health education activities ability to change health-related behaviors. KAP survey can also suggest an intervention strategy that reflects specific local circumstances and cultural factors that influence them; plan activities that are suited to the respective population involved.

Studies on knowledge, attitudes and practices are applicable to design or improve Tuberculosis control programs, to set epidemiological and behavioral baselines and to identify indicators for monitoring a program's effectiveness. Analyses, using the outcomes from knowledge, attitudes and practices studies of communities, have become important in terms of making health education effective. Health education materials and programs can be tailored to fit the local needs of the community, based on the following collected from such analyses. The results of these types of studies can be incorporated into the decision making processes, the design of interventions with active community participation, and the implementation of education schemes.

## **2.6 Review on Previous Studies of Tuberculosis**

The first milestones of the End TB Strategy are set for 2020. They are a 35% reduction in TB deaths and a 20% reduction in TB incidence, compared with level in 2015; and that no TB patients and their households should face catastrophic costs as a result of TB disease. Monitoring of TB-Specific indicators is well established at

global and national levels. For example, standardized monitoring of notifications of TB cases and their treatment outcomes at global and national levels has been in place since 1995, and estimates of TB incidence and mortality have been published annually by WHO for more than decade. (Global TB Report 2017, WHO)

In 2017, WHO has developed a TB-SDG monitoring framework of 14 indicators that are associated with TB incidence, under seven SDGs. There are seven indicator under SDG 3 (health and well-being): coverage of essential health services; percentage of total health expenditures that are out-of-pocket; health expenditure per capita; HIV prevalence; prevalence of smoking; prevalence of diabetes; and prevalence of alcohol use disorder. The other seven indicators, linked to SDGs 1, 2, 7, 8, 10 and 11, are: proportion of the population with primary reliance on clean fuels and technology; gross domestic product (GDP) per capita; Gini index for income inequality; and proportion of the urban population living in slums.

Most of the estimated number of incident case in 2016 occurred in the WHO South-East Asia Region (45%), the WHO African Region (25%) and the WHO Western Pacific Region (17%); smaller proportions of cases occurred in the WHO Eastern Mediterranean Region (7%), the WHO European Region (3%) and the WHO Region of Americas (3%). The annual number of incident TB cases relative to population size varied widely among countries in 2016, from under 10 per 100 000 population in most high-income countries to 150-300 in most of the 30 high TB burden countries, and above 500 in a few countries including the Democratic People Republic's Korea, Lesotho, Mozambique, the Philippines and South Africa. Regionally, the fastest decline in TB incidence is in the WHO European Region (4.6% form 2015 to 2016). The decline since 2010 has exceeded 4% per year in several high TB burden countries, including Ethiopia, Kenya, Lesotho, Namibia, the Russian Federation, the United Republic of Tanzania, Zambia and Zimbabwe. (Global TB report 2017, WHO)

About 82% of TB deaths among HIV-negative people occurred in the WHO African Region and the WHO South-East Asia Region in 2016; these regions accounted for 85% of the combined total of TB deaths in HIV-negative and HIV-positive people. India accounted for 33% of global TB deaths among HIV-negative people, and for 25% of the combined total of TB deaths in HIV-negative and HIV-positive people.

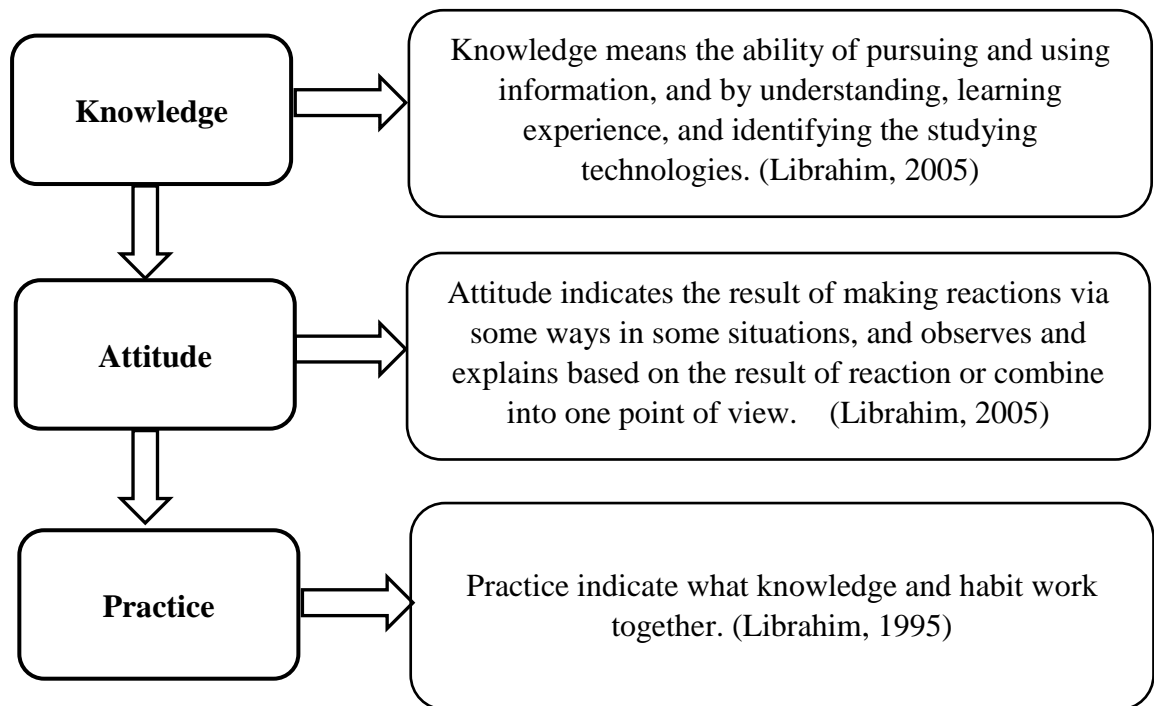
Globally, the TB mortality rate (per 100 000 population) fell by 37% between 2000 and 2016. Regionally, the fastest declines in the TB mortality rate are in the WHO European Region and the WHO Western Pacific Region (6.0% and 4.6% per year, respectively, since 2010). Globally in 2016 an estimated 4.1% (95% confidence interval (CI): 2.8-5.3%) of new cases and 19% (95% CI: 9.8-27%) of previously treated cases had MDR/RR-TB.

National notification and vital registrations systems need to be strengthened towards the goal of direct measurement of TB incidence and mortality in all countries. National TB prevalence surveys provide an interim approach to directly measuring the burden of TB disease in an important subset of high TB burden countries. The number of children aged under 5 years who were reported to have been started on TB preventive treatment increased by 85% between 2015 and 2016 (from 87242 to 161740), but was still only 13% of the 1.3 million estimated to be eligible. (Global TB report 2017, WHO)

Funding for TB care and prevention reached US\$ 6.9 billion in 2017 in 118 low and middle-income countries that reported data (and accounted for 97% of reported TB cases globally). This was an increase from US\$ 6.3 billion in 2016 and more than double the US\$ 3.3 billion that was available in 2006. Projections of total health expenditures in low and middle-income countries 2016-2030 compared with estimates of the funding required for progress towards universal health coverage and achievement of other SDG-related health targets have been published in a 2017 WHO report, The SDG Health Price Tag.

Overall, they suggest that most middle-income countries could mobilize the funding needed to achieve universal health coverage and other SDG-related health targets during this period, but that low-income countries are unlikely to have the domestic resources to do so. Of the 10.4 million incident cases of TB in 2016, an estimated 1.9 million were attributable to undernourishment, 1.0 million to HIV infection, 0.8 million to smoking and 0.8 million to diabetes. Examples of high TB burden countries doing relatively well in terms of at least some of the indicators associated with TB incidence include Brazil, Indonesia, South Africa, Thailand and Vietnam.

**Figure (2.1) The Influence Diagram of Knowledge, Attitude and Practice**



Source: IOSR journal of Nursing and Health Science, 2013

Moreover, KAP survey can measure the extent of a known situation; confirm or disprove a hypothesis; provide new tangents of a situation's reality, can enhance the knowledge, attitude, and practices of specific themes; identify what is known and done about various health-related subjects, can establish the baseline (reference value) for us in future assessments and help measure the effectiveness of health education activities ability to change health-related behaviors, can suggest an intervention strategy that reflects specific local circumstances and the cultural factors that influence them; plan activities that are suited to the respective population involved. Figure (2.1) shows the influence diagram of Knowledge, Attitude and Practice.

## **CHAPTER III**

### **TUBERCULOSIS SITUATION IN MYANMAR**

#### **3.1 Tuberculosis Burden in Myanmar**

The National Tuberculosis Programme (NTP) was established in 1966 to lead the efforts of TB control in the country. NTP has been accelerating TB case finding fulfilling routine passive case finding. NTP introduced ACF activities in 2011 with the support of Global Fund and in 2014, with 3MDG. The different ACF activities are mobile team activities, sputum collection centres, community-based TB care activities, initial home visit and contact tracing by BHS, etc. Regional/State TB Officers or District TB Team Leaders usually lead the mobile team strengthened with digital X-ray visiting to far flung areas, urban poor areas, high case load and low case detection townships as well as prisons, mines and factories. (Infect Dis Poverty, 2017)

Community-based TB care activities (CBTC) were carried out by both local and international NGOs. During 2016, MMCWA, MWAF, MRCS, MHAA, MMA-ACF, PSI Myanmar, The Union, World Vision, IOM, Malteser, Cesvi, MAM, AHRN and HPA implemented the community TB care activity with volunteers. Total 47,007 presumptive TB cases were referred by the volunteers from local NGOs and gave anti-TB treatment to 7,947 all form of cases which made 6% contribution to the nation's notification. This could contribute about 5.7% to national case notification. Moreover, the volunteers referred 78,396 presumptive cases and notified 11,822 all forms of TB cases through INGOs which contributed 8.5% to country case notification of the same year. To intensify the case finding, TB screening among OPD attendees of PPM hospitals has been initiated since end of 2014.

Six PPM hospitals (New Yangon General Hospital, Insein General hospital, East Yangon General Hospital, North Okkalapa General Hospital, Mandalay 300 bedded hospital, Hpa-an General Hospital) have being implemented this activity. At the same time, TB screening among diabetic patients were done at diabetic clinics of two PPM hospitals (North Okkalapa General Hospital and Mandalay General

Hospital). In 2016, total 604 all forms of TB including 191 bacteriologically confirmed cases were treated for TB.

About 280,329 presumptive TB cases were screened for TB through various accelerated case finding activities. Among them, 31,205 all forms of TB could be detected and provided anti-TB treatment. The accelerated case finding activities have contributed the national TB cases detection by 22.3% (31205/139,625) in 2016.

In 1999, NTP developed the framework for the implementation of EQA activities using conventional method in which all positive slides and 10% of the negative slides examined were checked. This method made high burden for STLSs of Regional and State TB Laboratories and then on NTRL. The laboratories from INGOs (AHRN, International Organization for Migration (IOM), MDM, MSF-Holland, MSF-CH and PSI; local NGOs (MMA) and one private laboratory (Parami) sent quality control slides either to respective Region/State TB laboratories

### **3.2 National Tuberculosis Program in Myanmar**

Myanmar is in South-East Asia that is classified by the World Health Organization (WHO) as one of the 30 high Tuberculosis (TB) burden countries and the incidence and mortality of TB in Myanmar is estimated to be 369 and 53 per 100 000 population in 2014. The National Tuberculosis Programme (NTP) programme adopted and implemented the Directly Observed Treatment Short Course (DOTS) strategy in 1997 and the Stop TB Strategy in 2007. In 2017, Myanmar achieved 132025 TB cases of case notification rate 292/100 000 population (Bacteriological Confirmed + Clinically diagnosed, 106/100 000 case notification rate (Bacteriological Confirmed), WHO targets of detecting 70% of estimated cases and successfully treated  $\geq$  85% of detected cases. . (Infect Dis Poverty, 2017)

The National Strategic Plan for Tuberculosis 2015-2020 builds on the past experiences of National Tuberculosis Program and its partners. It boldly moves NTP in-time with the WHO End TB Strategy as it describes evidence-based approaches to:

- Accelerate the decline in the prevalence of drug-sensitive and drug-resistant TB through integrated, patient-centered care;
- Introduce bold policies and systems to support TB prevention and care as part of Universal Health Coverage; and
- Pursue an ambitious research agenda to enhance the prevention, detection and care of TB patients.

The Ministry of Health and Sports, National Tuberculosis Program present it National Strategic Plan 2016-2020 in line with its; Vision-Myanmar free of TB, Zero deaths, disease and suffering due to TB by 2050, Goal-End the TB epidemic in Myanmar (Fewer than 10 cases per 100 000 population by 2035) (Global TB report, 2019)

Objective 1: Accelerate the decline in the prevalence of drug-sensitive and drug-resistant TB

Objective 2: Fully integrate TB prevalence and care in Universal Health Coverage

Objective 3: Enhance the prevention of TB, particularly for high-risk populations.

The National Strategic Plan is fully aligned with the World Health Organization End TB Strategy and is organized according to three Strategic directions, highlighted below:

Strategic Direction I: Integrated, Patient-centered Care and Prevention

Strategic Direction II: Bold Policies and Supportive Systems

Strategic Direction III: Intensified Research and Innovation

It also embraces four key principles:

- Government stewardship and accountability, with systematic monitoring and evaluation
- Formal engagement of civil society organizations and communities;
- Protection and promotion of human rights, ethics and equity; and
- Adaptation of the strategy and targets at decentralized levels, with National Tuberculosis Program coordination. (End TB Strategy, WHO 2015)

### **3.3 Prevalence and Incidence of Tuberculosis in Myanmar**

Myanmar is among the 30 highest TB burden countries worldwide, Case notification increased sharply between 1999 and 2007. Since then it has only risen marginally, even though about a third of cases were thought to remain undiagnosed. In Myanmar, there are sub-sets of the population who are at higher risk for TB given their occupational or socio-economic conditions. In addition, there are sub-populations who are particularly difficult to reach with services, due to geographical or social reasons. (3MDG, News Letter)



In Myanmar, the groups warranting special attention have been identified as health workers, the elderly, prisoners, urban and rural poor, miners, migrants, ethnic minorities and people who use/inject drugs. Incidence of tuberculosis is the estimated number of new pulmonary, smear positive, and extra-pulmonary tuberculosis cases. For tuberculosis, the prevalence rate per 100 000 population in Myanmar was 457 in 2014 and 427 in 2016. Also for case notification rate, it is 132 025 population in 2017. Case notification and incidence are gradually decreased year by year but it is needed to strengthen the health care activities to reach the national target.

**Table (3.1) Incidence of Tuberculosis in Myanmar**

	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Incidence of TB	472	369	365	361	358

Source: WHO

The above table shows the incidence of tuberculosis in Myanmar for five years from 2013 to 2017. The incidence of TB in 2013 was 472 and high. The incidence rate per 100 000 population in Myanmar was 369 and 365 in 2014 and 2015 respectively. The incidence rate for tuberculosis rate for tuberculosis in Myanmar was gradually reduced to 361 in 2016 to 358 in 2017. The incidence rate is gradually decreased in recent years although the incidence was dramatically decreased from 472 in 2013 to 369 in 2014 because of strengthening in health education in public awareness and health care activities. (Global TB Report, 2018)

### **3.4 Awareness Raising Activities for TB in Myanmar**

Preventive measures, awareness raising activities, diagnosis and treatment for TB is conducted according to the guidelines of National Tuberculosis Programme, Ministry of Health and Sports in Myanmar. In which awareness raising activities are conducted by NTP in collaboration with non-government organization and community based organizations. Health information for TB is recruited via the health care providers and trained volunteers. (Infect Dis Poverty. 2017)

Awareness raising activities are done in community, school and industry or work place. Information for TB is distributed among community through various ways, such as newspaper, magazine, journal, posters, television, radio and internet. In television, health education for TB is contributed via short movies, Nowadays,

awareness raising activities and campaign become more activated and contributed nationwide.

Each year we commemorate World TB Day on March 24 to raise public awareness about the devastating health, social and economic consequences of tuberculosis and to step up efforts to end the global TB epidemic. The date marks the in 1882 when Dr. Robert Koch announced that he had discovered the bacterium that causes TB, which opened the way towards diagnosing and curing this disease. Despite significant progress over the last decades, TB continues to be the top infectious killer worldwide, claiming over 4500 lives a day. (WTBD, 2019)

The emergence of multidrug-resistant TB (MDR-TB) poses a major health security threat and could risk gains made in the fight against TB. “We will end TB” is the slogan announced for the theme for the World TB Day in 2016. “Leave No one behind, Unite to end TB” is the slogan for Stop TB partnership announced for World TB Day for 2017. Wanted: Leaders for a TB-Free World, You can make history, End TB” is the slogan for the Stop TB Partnership announced the theme for World TB Day 2018. (WTBD, 2019)

### **3.5 Knowledge on Tuberculosis among the Members of a Rural Community in Myanmar**

Myanmar, one of the high tuberculosis (TB) burden countries, is in serious need of research work to develop strategies aiming to tackle the problem. Conducting a study on the knowledge of the population will help understand the flaws in the National TB Control Programme (NTP), and how to correct them, and further strategic planning to reach the goals of Sustainable Development Goals. The aim of this study was to access socio-demographic characteristics, knowledge, and behavioral practice of TB among the community members in Ngar Syu Tuang Village, Hlegu Township. This is a cross-sectional descriptive study and the number of defined person was 200.

Nonprobability convenience sampling method was used. Data collected by house officers as a part of the community medicine training program. Less than half of the respondents were not aware of TB meningitis (41%) and TB osteomyelitis (49%) and they are not aware that diabetic patients are one of the commonly infected people (41.5%). Furthermore, less than one-third of the patients know that TB can infect the gut (23%) and cause bowel obstruction (30.5%). The survey has revealed

important information regarding the knowledge and behavioral practice of the Ngar Syu Taung Village population. Using this information, appropriate intervention plans should be done to tackle the problems regarding TB. Only 45% of the respondents have good knowledge, which is a really low value, as Myanmar is a country with very high burden. Intervention is required urgently to increase the knowledge of the rest (46%) of the respondents. (Int J Mycobacteriol. 2017)

Health education through radios and television is urgently suggested as they are the major sources of information (90%) and the knowledge level will continue to decline if there is no further intervention. However, in a nationwide study, MDHS 2015-16, 71% of women and 63% of men know that TB spreads through coughing, compared to 95.5% in this study. This means that there are many regions in Myanmar that have far worse knowledge on TB than this studied village.

Regarding the topics, tuberculosis meningitis, tuberculosis osteomyelitis, and tuberculosis intestinal obstruction should also be emphasized with the same level as the another topic as they are usually not included in most health education programs in Myanmar. Awareness should also be raised regarding the association between diabetes and TB. Another important fact is that 27.5% of the respondents agreed to self-medication, which is a dangerous problem, as drug resistance may arise. Almost 34.5% agreed to traditional medicine, which is also harmful to the individual as well as for the public. A similar finding was found from a study conducted at Ethiopia where 45.3% of the study population prefer traditional healers for treatment. Local traditional practitioners and drug stores should be informed and given information not to give traditional treatment and drugs to people suspected of suffering from TB.

Regarding the behavioral practice of the respondents, 25% were still smoking, so health education program aimed at smoking cessation are highly recommended. Furthermore, their behavioral practices were mostly wrong, not covering the mouth with a handkerchief when they cough (37%), not using mask when they are ill (70.5%), and discarding the sputum anywhere (48%), this could lead to high risk of transmission among the population. Health education intervention is urgently needed to correct these wrong practices. The study has revealed some wrong ideas and lack of knowledge in certain areas regarding TB. These wrong ideas should be tackled, and lacking knowledge should be enlightened. For doing so, it has found out the most effective way as television and radio. Cooperation between Ministry of

Health and Sports and Ministry of Information is needed for broadcasting health education programs on television and radio.

According to these evidence, TB remains the global burden and public awareness plays most important role in disease control. Some of the population have wrong idea about health knowledge associated with communicable disease especially TB and ore preventive activities and awareness raising activities should be more conducted. The more people know about tuberculosis and the importance of stopping the spread of the disease, the more focus and funds, can be shifted toward stopping it.

## **CHAPTER IV**

### **TUBERCULOSIS IN THINGYANGYUNE TOWNSHIP**

#### **4.1 The Profile of Thingyangyun Township**

Thingyangyun township is located in the eastern part of Yangon, This township comprises 38 wards and shares borders with South Okkalapa in the north, North Dagon in the east, Yankin township and Tarmwe township in the west, and Thakata township in the south. The township has 40 Primary schools, four middle schools and five high schools.

The township is the home of Thingyangyun Education Colleague (TTC) and University of Dental Medicine. The city's main sporting venues is the Thuwaunna stadium and the Thuwanna indoor stadium is located on the western side of the township.

The total population in Thingyangyun Township is 205,738 with 47% (96,433) of male and 53% (109,305). There are a government hospital and a 500 bedded San Pya General Hospital in the township; 1 ambulance and 3 ambulance supported from Community Base Social Organization. The disable supporting school is also located at Nga/Kya Ward.

The population of productive working population between 15 to 65 years of age in the township is 69.5%. The proportion of dependents such as children aged 14 and elderly aged 65 and over is less than the proportion of the working age group population.

#### **4.2 Survey Design**

The survey design was a community-based cross-sectional and the data was collected using questionnaire administered by data collectors. Every individual aged from 15-65 years, residing in the randomly selected 5 quarters of the study township was eligible for the study. Starting point is set as 15 years for their considerable maturity and ability to work. The end point is set as 65 because over 65 may have poor in memory and may confuse in their answers. Study participants were all 16-65

years of age individuals who were randomly selected from eligible individuals in the selected households and consented to participate in the study. Individuals who are guests; less than 15 years of age; mentally ill or did not provide consent to participate in survey were excluded from the survey.

The questionnaire was designed in Myanmar based on questions and answers published by the Ministry of Health and Sports of Myanmar. The structured questionnaire composed of four main sectors; socio-demographic factors, knowledge about TB and, behavioral practice about TB and Pathway Analysis. Knowledge questionnaire about TB include questions about the signs and symptoms of TB, mode of transmission, expense for TB treatment and preventive methods. Behavioral practice questionnaire include question about TB diagnosis, vaccination for TB, preventive measure and social dealing between infected people and community and pathway choices for diagnosis, treatment seeking.

The required sample size was calculated using the formula required for determination of sample size for estimating single proportion. Target group of determination portion is 20% each on high, middle and local income, and 20% each on TB patient and 20% on Cure patients. Based on the assumption that 50% of the study participants had high level of knowledge of TB and with additional assumption of 95% confidence interval, 5% margin of error and 10% non-respondent rate in our estimate, a total sample in the township were selected using simple random sampling technique and the calculated sample was proportionally distributed in the selected quarters based on their number of households.

Then, from each of the selected quarter, households were selected using systematic random sampling technique. Finally, from all the eligible respondents in a household, only two was selected randomly for the interview. But in the absence of eligible respondent in a given household, a substitution was made by an individual in the next household.

The questionnaire was pre-tested on randomly selected individuals from the survey area and these data were not counted in the analysis of the main study. During the pre-test, the questionnaire was assessed for its clarity/understandability, reliability, sensitivity of the subject matter and for cultural acceptability in the area. Verbal informed consent was obtained and participation was optional. Face- to face interview method was used and responses were recorded in a structured questionnaire.

Responses to knowledge questions were recorded as "Yes" or "No" for people's knowledge and three point liker scale for people's attitude on TB. Data was processed using Microsoft Excel. Descriptive statistics were used to describe all variables.

### **4.3 Socio-Demographic Data of the Respondents**

The survey of people were divided into 2 main groups of non-TB respondents and TB patients on knowledge and practice towards tuberculosis with age, sex, education status and occupation status are accessed.

#### **4.3.1 Age Distribution of the Respondents**

Overall 453 respondents were participated in this study. The age limit was from 15 to 65. Age distribution of the respondents can be seen in the Table (4.1).

**Table (4.1) Age Distribution of the Respondents**

<b>Age</b>	<b>Respondents</b>	<b>Percentage</b>
<30	141	31%
31-40	117	26%
41-50	118	26%
>50	77	17%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to the table (4.1), regarding the age group distribution, 31% was below 30; 26 % for aged between 31 and 40 years; equal distribution for the age of 41 and 50 years; and 17% for aged above 50.

#### **4.3.2 Gender Distribution of the Respondents**

##### **(Non-TB respondents and TB patient's respondents)**

Overall of 453 respondents are participated and gender distribution of the respondents into 2 group (TB patients respondents and non-TB respondents) can be seen in below table (4.2).

**Table (4.2) Gender Distribution of the Respondents (Non-TB and TB Patient Respondents)**

Type	Gender	Respondents	Percentage
<b>Non-TB Respondents</b>	Male	<b>163</b>	<b>36%</b>
	Female	<b>233</b>	<b>51%</b>
<b>TB-Patients</b>	Male	<b>32</b>	<b>7%</b>
	Female	<b>25</b>	<b>6%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey data

According to table (4.2), most of the respondents on non-TB were counted 36% of 163 respondents as Male and 51% of 233 respondents as Female. Respondents on TB Patients were accounted 7% of respondents 32 as Male and 25 were counted with 6% were comprised of female. At that point, most of the male are not available for survey because of the working nature.

#### **4.3.3 Educational Status of Both respondents (Non-TB respondents and TB patients)**

Overall 453 respondents are participated in the survey. There are seven groups of educational levels ranging Primary Level, middle level, high level, University level. Educational status of the respondents can be seen in Table (4.3).

**Table (4.3) Educational Status of the Respondents**

Type	Educational Status	Respondents	Percentage
<b>Non-TB Respondents</b>	Primary Level	<b>110</b>	<b>24%</b>
	Middle Level	<b>78</b>	<b>17%</b>
	High Level	<b>138</b>	<b>30%</b>
	University Level	<b>70</b>	<b>15%</b>
<b>TB-Patients</b>	Primary Level	<b>11</b>	<b>2.8%</b>
	Middle Level	<b>16</b>	<b>3.8%</b>
	High Level	<b>28</b>	<b>6.8%</b>
	University Level	<b>2</b>	<b>0.6%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey data



According to table (4.3), there were 453 respondents and primary level were accounted 110 respondents of 24% with non-TB respondents and 2.8% of 11 respondents were TB patient, middle level were accounted 78 respondents of 17% with non-TB respondents and 3.8% of 16 respondents were TB patient, high level were accounted 138 respondents of 30% with non-TB respondents and 6.8% of 28 respondents were TB patient, University level were accounted 70 respondents of 15% with non-TB respondents and 6% of 2 respondents were TB Patients.

#### 4.3.4 Occupational Status of the Respondents

Overall of 453 respondents are participated in this survey. Occupational status can be grouped into Student, dependent, normal worker, shop owner, company staff and Government Staff. Occupational Status of the respondents can be seen in Table (4.4).

**Table (4.4) Occupational Status of the Respondents**

Type	Occupational Status	Respondents	Percentage
<b>Non-TB Respondents</b>	Student	<b>64</b>	<b>14%</b>
	Dependents	<b>150</b>	<b>33%</b>
	Normal Workers	<b>145</b>	<b>32%</b>
	Shop Owners	<b>20</b>	<b>4%</b>
	Company Staff	<b>25</b>	<b>5.5%</b>
	Government Staff	<b>2</b>	<b>0.5%</b>
<b>TB-Patients</b>	Student	<b>2</b>	<b>0.5%</b>
	Dependents	<b>16</b>	<b>4%</b>
	Normal Workers	<b>27</b>	<b>6%</b>
	Shop Owners	<b>0</b>	<b>0%</b>
	Company Staff	<b>2</b>	<b>0.5%</b>
	Government Staff	<b>0</b>	<b>0%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey data

According to table (4.4), 64 respondents of 14% of non-TB respondents had responded and 2 TB patient of 0.5% responded from Students, 150 respondents of 33% were non-TB respondents has responds and 16 TB Patient of 4% had responded

from dependents occupation, from the normal worker respondents 145 of 32% of Non-TB had responded and 27 of 6% were responded, 20 of 4% of Non-TB had responded in this survey from Shop Owner category, 25 of 5.5% of non-TB respondents had respond and 2 respondents of 0.5% had responded from Company Staff and only 2 Government Staff respondents of 0.5% had in this survey.

#### 4.3.5 Nearest Health Facility Status of the Respondents

From of the overall 453 Respondents are participated. Nearest health facility status has been grouped in 2 groups, within a 1 Kilometer and more than 1 Kilometer from nearest health facility status can be seen in Table number (4.5).

**Table (4.5) Nearest Health Facility Status of the Respondents**

Type	Nearest Health Facility	Respondents	Percentage
<b>Non-TB Respondents</b>	<Kilometer	<b>314</b>	<b>69%</b>
	>Kilometer	<b>82</b>	<b>18%</b>
<b>TB-Patients</b>	<Kilometer	<b>57</b>	<b>13%</b>
	>Kilometer	<b>0</b>	<b>0%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey Data

According to Table (4.5), 314 non-TB respondents of 69% had accounted as they stayed less than 1 Kilometer with nearest health facility and 57 TB patients of 13% had responded. 82 non-TB respondents of 18% were accounted to be more than 1 Kilometer from nearest health facility status and there were no respondents from TB patient for this category due to geographic location.

#### 4.4 Knowledge about Tuberculosis

For accessing the public knowledge with tuberculosis, the following associated questions are prepared: (1) Reason why TB Occurred, (2) Source of TB infection, (3) People who can be infected TB, (4) Signs and symptoms of TB (5) Generally health seeking, (6) how to prevent getting TB (7) How can be cured (8) expense for TB diagnosis.

#### 4.4.1 Knowledge about Reason why TB Occurred for Both Respondents

The following table shows about the number of respondents of knowledge question on basic knowledge on “Do you know the reason why TB occurred?” There were 3 answers to be check (x) from Generic, TB Disease and Smoking.

**Table (4.6) Reason why TB Occurred**

Type	Reason Why TB Occurred	Respondents	Percentage
<b>Non-TB Respondents</b>	Generic	<b>79</b>	<b>17%</b>
	TB Disease	<b>268</b>	<b>59%</b>
	Smoking	<b>49</b>	<b>11%</b>
<b>TB-Patients</b>	Generic	<b>10</b>	<b>2%</b>
	TB Disease	<b>39</b>	<b>9%</b>
	Smoking	<b>8</b>	<b>2%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey Data

According to table (4.6), Accounted 79 non-TB respondents of 17% and 10 TB patient of 2% responded as Generic is the main reason why TB occurred, 268 non-TB of 59% and 39 TB patients of 9% had responded as TB Disease is the main reason and 49 non-TB respondents of 11% and 8 TB patient of 2% had responded as Smoking is the main reason why TB occurred.

#### 4.4.2 Knowledge about Fact of TB Disease infected for Both Respondents

The following table shows about the number of respondents of knowledge question on basic knowledge on “fact of TB Disease infected?” There were 3 answers to be check (x) from Airborne from TB infected person’s sneeze and cough, from sex transmission and Needle infection.

According from Table (4.7), 355 Non-TB respondents of 78% and 48 TB patient of 11% were account by responding Airborne from TB infected person’s sneeze and cough, 21 non-TB respondents of 5% and 4 TB patient had responded Sexual Transmission is the main fact of TB Disease and 20 non-TB respondents of 4% and 5 TB patients of 1% were accounted by responding as Needle infection is the main fact.

**Table (4.7) Fact of TB Disease Infected for Both Respondents**

Type	Source of TB Infection	Respondents	Percentage
<b>Non-TB Respondents</b>	Airborne from TB infected person's sneeze and cough	<b>355</b>	<b>78%</b>
	Sex Transmission	<b>21</b>	<b>5%</b>
	Needle Infection	<b>20</b>	<b>4%</b>
<b>TB-Patients</b>	Airborne from TB infected person's sneeze and cough	<b>48</b>	<b>11%</b>
	Sex Transmission	<b>4</b>	<b>1%</b>
	Needle Infection	<b>5</b>	<b>1%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey Data

#### 4.4.3 Knowledge about of People who can be Infected TB

The following table shows about the number of respondents who know about the commonly infected persons for TB. The data were collected more than more sources, counting the frequent number knowing the commonly infected persons for TB.

**Table (4.8) Knowledge about Risk Group of TB Infection**

People who can be infected TB	Respondents	Percentage
Malnutrition	<b>355</b>	<b>78%</b>
Immunosuppression (HIV/AIDS)	<b>380</b>	<b>84%</b>
Smoking, Alcohol drinking	<b>301</b>	<b>66%</b>
Extreme old age or under five year children	<b>376</b>	<b>83%</b>
Diabetes	<b>295</b>	<b>65%</b>
Low Socio-economic status	<b>369</b>	<b>81%</b>
Poor lightening and poor ventilation	<b>206</b>	<b>45%</b>
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey data

According to table (4.8), knowledge on people who can be infected TB, 78% of respondents knew about Malnutrition, 84% knew on Immunosuppression (HIV/AIDS), 66% knew on Smoking, Alcohol drinking, 83% that extreme old age or

<5, 65% knew Diabetes, 81% knew about low socio-economic and only 45% knew about poor lightening and poor ventilation.

#### 4.4.4 Knowledge about Signs and Symptoms of TB

The following table shows the number of respondents who know about the signs and symptoms of tuberculosis. More than one answer is possible for collecting the data for knowledge about signs and symptoms of tuberculosis.

**Table (4.9) Knowledge about Signs and Symptoms of TB**

<b>TB Symptoms</b>	<b>Respondents</b>	<b>Percentage</b>
Cough that lasts longer than 3 weeks	<b>365</b>	<b>80%</b>
Severe headache	<b>67</b>	<b>15%</b>
Nausea	<b>56</b>	<b>12%</b>
Weight Loss	<b>232</b>	<b>51%</b>
Fever	<b>129</b>	<b>28%</b>
Fever without clear cause that lasts more than 10 days	<b>344</b>	<b>76%</b>
Chest Pain	<b>12</b>	<b>2%</b>
Shortness of breath	<b>23</b>	<b>5%</b>
Ongoing fatigue	<b>26</b>	<b>5%</b>
Do not know	<b>0</b>	<b>0%</b>
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to the table (4.9), regarding the signs and symptoms of TB, 80% of respondents knew that coughing that lasts longer than 3 weeks was one of the reason, 76% about fever without clear cause that lasts more than 10 days as a symptom, 51% weight loss, 28% fever, 12% of Nausea and less than 10% each on chest pain, shortness of breath, ongoing fatigue from 453 respondents had this concern.

#### 4.4.5 Knowledge of Sources of Information about Tuberculosis

The following table shows about the number of respondents who were heard about tuberculosis from different sources. The data were collective more than more sources, counting the frequent sources of information.

**Table (4.10) Sources of Information about Tuberculosis**

Sources of information about TB	Respondents	Percentage
News papers and Magazine, Brochures, posters and other printed materials	402	88%
Radio, TV, Billboards	345	76%
Health Workers	318	70%
Family, friends, neighbors and colleagues, Religious Leaders, Teacher	217	47%
Other	7	1.5%
Total	453	100%

Source: Survey Data

According to table number (4.10), regarding to the source of information about knowing tuberculosis, most of the respondents get knowledge about TB from various routes but mainly from health workers 88%, 76% on Newspapers, magazine, Brochures, posters and other materials, 70% from Radio, TV and Billboards but only 47% from family, friends, neighbors and colleagues, religious leaders and teachers and only 1.5% from other sources. Awareness raising activities for TB had seemed to well successfully contribute among the community.

#### **4.4.6 Knowledge about how to Prevent Getting TB Disease**

Following table shows about the number of respondents who know about how to prevent getting TB Disease. The questioning are more than one answer is possible for collecting data for knowledge about how much the participant know about TB prevention.

**Table (4.11) Knowledge about how to Prevent Getting TB Disease**

<b>How to prevent getting TB</b>	<b>Respondents</b>	<b>Percentage</b>
Avoid shaking hands	61	13%
Covering mouth and nose when coughing or sneezing	361	80%
Avoid sharing dishes	44	10%
Washing hands after touching items in public places	121	26%
Closing window at home	4	1%
Through good nutrition	238	62%
By Praying	8	2%
Do not know	0	0%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to Table 4.10, knowledge about how to prevent getting TB disease 80% of studied population believe on Covering mouth and nose when coughing or sneezing, 62% on through good nutrition, 26% on washing hands after touching items in public places, 13% on avoid shaking hands. 10%-2% believe on avoid, sharing dishes, closing window at home and by praying can prevent getting TB disease.

#### **4.4.7 Knowledge about Diagnosis about Tuberculosis**

The following table shows about the number of respondents who know about the diagnosis of Tuberculosis.

**Table (4.12) Knowledge about Diagnosis about Tuberculosis**

<b>Knowledge about Diagnosis about TB</b>	<b>Respondents</b>	<b>Percentage</b>
Sputum AFB	395	87%
Chest X-Ray	302	67%
Blood Tests	34	7%
Stool AFB	23	5%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to Table (4.12), regarding to knowledge about Diagnosis of TB, 87% of the respondents know that TB can be diagnosed by taking Sputum examination, 67% on chest X-Rays and only 7% of the responded know from Blood Test and 5% wrongly responded on Stool sampling.

#### 4.4.8 Knowledge about MDR-TB

The following table shows about the number of respondents who had knowledge and heard about MDR-TB.

**Table (4.13) Knowledge about MDR-TB**

<b>Have you heard about MDR-TB</b>	<b>Respondents</b>	<b>Percentage</b>
Yes	401	89%
No	52	11%
<b>Total</b>	453	100%

Source: Survey Data

According to table (4.13), 89% which is 401 respondents heard about MDR-TB and only 11% (52 respondents) did not.

#### 4.5 Knowledge about TB Treatment, Expenses, Cure about TB Treatment

From the public awareness about TB treatment, Expenses and cure sources, the following data were collected: General health seeking How can be cured, Expense and accessible area of TB treatment in the survey area.

##### 4.5.1 Knowledge about General Health Seeking

The following table shows about the number of respondents who are general health seeking as for health issue. Only the correct answer was collected to assess on how many people had wrong concern with general health seeking knowledge.



**Table (4.14) Knowledge about General Health Seeking**

<b>General Health Seeking</b>	<b>Respondents</b>	<b>Percentage</b>
Twice a year	185	41%
Once per year	98	22%
Less than once a year but at least twice in past 5 years	58	13%
Once in past 5 years	28	6%
Never in past 5 years	84	18%
Total	453	100%

Source: Survey Data

According to table (4.14), general health seeking responded from 453 respondents 41% seek twice a year, 22% seek once per year, 18% had never seek general health in past 5 year, 13% seek less than once a year but at least twice in past 5 years and 6% seek only once in past 5 years.

#### **4.5.2 Knowledge about how TB disease can be Cured**

Following table shows about the number of respondents who know about how TB disease can be cured. The questioning are more than one answer is possible for collecting data for knowledge about how TB disease can be cured.

**Table (4.15) Knowledge about how TB Disease can be Cured**

<b>How can be cured</b>	<b>Respondents</b>	<b>Percentage</b>
Herbal Remedies	89	20%
Home rest without medication	124	28%
Praying	51	12%
Specific drugs given by health center	288	64%
DOTs	346	76%
Total	453	100%

Source: Survey Data

According to table (4.15), 76% knew Direct Observe treatments (DOTs) can be cured TB Disease, 64% also knew on specific drugs given by health center, 28% believe home rest without medication can be cured, 20% respondents believe herbal remedies can cured TB disease and 12% believe praying can be cured TB Disease.

### 4.5.3 Knowledge about Expense of TB Diagnosis and Treatment (Both Non-TB and TB Patients)

The following table shows about the number of respondents from both Non-TB respondent and TB Patients, who knows and experience about the expense of TB diagnosis and treatment.

According to table (4.16), total of 89% (78%, 352 of non-TB and 11% of 53 TB Patients) knew TB Diagnosis and Treatment of TB is free of charge. 11% respondents did not knew TB Diagnosis and Treatment is free of charge and responded as 5% of non-TB and 0.6% of TB patient answered reasonable, 3% of non-TB and 0.2% of TB patient answered moderately expensive and 2% of non-TB and 0.2% of TB patient answered were very expensive.

**Table (4.16) Knowledge of Expense of TB Diagnosis and Treatment**

Type	Expense for TB diagnosis in area	Respondents	Percentage
<b>Non-TB Respondents</b>	It is free of Charge	<b>352</b>	<b>78%</b>
	It is reasonable price	<b>23</b>	<b>5%</b>
	It is somewhat/ Moderately expensive	<b>13</b>	<b>3%</b>
	It is very expensive	<b>8</b>	<b>2%</b>
<b>TB-Patients</b>	It is free of Charge	<b>53</b>	<b>11%</b>
	It is reasonable price	<b>2</b>	<b>0.6%</b>
	It is somewhat/ Moderately expensive	<b>1</b>	<b>0.2%</b>
	It is very expensive	<b>1</b>	<b>0.2%</b>
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey Data

### 4.5.4 Knowledge of Accessible Area of TB Treatment

Following table shows that the number of respondents who know about the accessible area of TB treatment in their area. More than one answer were collected to access the different level of knowledge in concerning with the accessible area of TB treatment.

**Table (4.17) Knowledge of Accessible Area of TB Treatment**

<b>Place where TB treatment available</b>	<b>Respondents</b>	<b>Percentage</b>
National TB Programme	404	89%
Government Hospital	397	88%
Township Health Centers	388	86%
Private Hospitals	281	62%
Pharmacy Shops	53	11%
Total	453	100%

Source: Survey Data

According to table (4.17), knowledge of accessible area of TB treatment, 89% knew about National TB Programme (NTP), 88% knew about Government Hospital, 86% knew about Township Health Centers, 62% knew about Private Hospitals and 11% had responded about TB treatment about Pharmacy Shops.

#### **4.6 Attitude and Practice towards Tuberculosis**

For accessing the public attitude and practice towards tuberculosis, the following associated questions are prepared

- (1) Reaction if you found out if you have TB
- (2) Who would you talk if you have TB?
- (3) Health facility seeking path if you are have TB
- (4) How person who have TB usually treated,

##### **4.6.1 Attitude and Practice on Reaction if you Found out you have TB**

The following table shows the reaction of respondents if they found out they have TB. The data were collected in answered to the question of “What would be your reaction if you were found out that you had TB?”

**Table (4.18) Attitude and Practice on Reaction if you found out you have TB**

<b>Reaction if you found out you have TB</b>	<b>Respondents</b>	<b>Percentage</b>
Fear	75	17%
Surprise	118	26%
Shame	53	12%
Embarrassment	12	2%
Sadness or Hopeless	4	1%
No, I am OK	191	42%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to table (4.18), 42% of participants responded to calm and ready to farther necessity but 26% responds as Surprise, 17% Fear, 12% Shame and less than 5% responded Embarrassment and Sadness or Hopeless.

#### **4.6.2 Attitude and Practice on Person to consult with their illness if they have Tuberculosis**

The following table shows the number of respondent's attitude and practice on person to consults with on their illness if they have Tuberculosis Disease. The data were collected more than one source, counting the frequent sources of information.

**Table (4.19) Attitude and Practice on Person to Consults with their Illness if they have Tuberculosis**

<b>Who would you talk if you have TB</b>	<b>Respondents</b>	<b>Percentage</b>
Doctor or medical worker	369	81%
Spouse	350	77%
Parent	211	47%
Child (en)	43	10%
Other family member	71	15%
Close friend	44	10%
No one	0	0%
Other	0	0%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According table (4.19), Attitude and Practice on person to consults with their illness if they have TB, 81% answer were responded to consults with Doctors or Medical Workers, 77% responded to consults with Spouse, 47% responded Parent, less than 15% responded on Child (en), Other family members, Close Friend and there were no responds to no one and other options.

#### 4.6.3 Attitude and Practice how Person with TB usually Treated Your Area (Both Non-TB and TB Patients)

The following table shows, the attitude and practice how people with TB usually treated in their area for both Non-TB and TB Patients.

**Table (4.20) Attitude and Practice about how Person with TB Usually Treated in Your Area**

<b>Types</b>	<b>How person with TB usually treated in your area</b>	<b>Respondents</b>	<b>Percentage</b>
<b>Non-TB Respondents</b>	Most people reject him or her	115	25%
	Most people are friendly, but they generally try to avoid him or her	119	26%
	The community mostly supports and helps him or her	162	37%
<b>TB-Patients</b>	Most people reject him or her	23	5%
	Most people are friendly, but they generally try to avoid him or her	15	3%
	The community mostly supports and helps him or her	19	4%
<b>Total</b>		453	100%

Source: Survey Data

According to Table (4.20) attitude and practice how person with TB usually treated in your area, from non-TB participants 25% and 5% of TB patient responded Most people rejected, 26% of non-TB and 3% of TB patient responded most people are friendly but they generally try to avoid and 37% highest and 4% of TB patients responded that the community mostly supports and helps person with TB is their area.

#### 4.6.4 Attitude and Practice on Drinking and Smoking While on TB treatment

The following table shows the attitude and practice on Drinking and smoking can be utilize while on TB treatment.

**Table (4.21) Drinking and Smoking while on TB Treatment**

<b>Drinking and Smoking while TB treatment</b>		<b>Respondents</b>	<b>Percentage</b>
<b>Smoking</b>	Yes	45	10%
	No	408	90%
<b>Total</b>		<b>453</b>	<b>100%</b>
<b>Drinking</b>	Yes	122	27%
	No	331	73%
<b>Total</b>		<b>453</b>	<b>100%</b>

Source: Survey Data

According to Table (4.21) Attitude and practice question on Drinking and Smoking can be utilize while on TB treatment, for Smoking 90% responds No but 10% responded Yes, for Drinking 73% responded No but 27% responded Yes.

#### 4.6.5 Attitude and Practice on Sleep Separate with Spouse and Family Member while on TB Treatment

Following table shows the attitude and practice on sleep separately with spouse and family member while on TB treatment. The data were collected from all participants on selecting one answer.

**Table (4.22) Attitude and Practice on Sleep Separate with Spouse and Family Member while on TB Treatment**

<b>Sleep separate with spouse and family member while on TB treatment</b>	<b>Respondents</b>	<b>Percentage</b>
Not required	131	29%
First 2-3 Months	183	41%
6-8 Months	103	22%
Do not know	36	8%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to table (4.22), Attitude and Practice on sleep separate with spouse and family member while on TB treatment, 29% had responded not required, 41% on first 2-3 Months, 22% on 6-8 months and 8% responded that they don't know.

#### 4.6.7 Attitude and Practice on Sputum Re-test during TB treatment

Following table shows the attitude and practice on sputum re-test during TB treatment. The data were collected from all participants on selecting one answer.

**Table (4.23) Attitude and Practice on Sputum Re-test during TB Treatment**

<b>Sputum re-test during TB treatment</b>	<b>Respondents</b>	<b>Percentage</b>
Not required	86	19%
Once after every 2, 5, 6 Months	83	18%
Once after every 3, 5, 8 Months	182	40%
Do not know	102	23%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to Table (4.23), the attitude and practice on sputum re-test during TB treatment, 40% responds Once after every 3, 5, 8 Months and 23% responds they do not know, 19% respond Not required and 18% responded once after every 2, 5, 6 Months.

#### 4.7 Pathway Analysis towards to Tuberculosis

The accessing the public awareness of pathway towards to TB, the following associated question are prepared;

- (1) Health facility seeking path if you are have TB
- (2) Nearest health facility service status
- (3) Reason why respondent not seeking health facility.

#### 4.7.1 Pathway Analysis on Health Facility seeking if you thought you had Tuberculosis

The following table shows the pathway analysis on health facility seeking if the participants thought if they had tuberculosis.

**Table (4.24) Pathway Analysis on Health Facility Seeking if you thought you had Tuberculosis**

<b>If you thought you had TB</b>	<b>Respondents</b>	<b>Percentage</b>
Will go to nearest health facility	253	56%
Will go to traditional healer	51	11%
Pursue other self-treatment options (herbs, etc.)	20	4%
GP	129	29%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to table (4.24), pathway analysis on health facility seeking if you have thought you had Tuberculosis, 56% participants responds to go to the nearest health facility, 29% responded to General Practitioner (GPs), 11% responded to go to traditional healer and only 4% responds to Pursue other self-treatment options.

#### 4.7.2 Pathway Analysis on Nearest Health Facility Status

The following table shows the pathway analysis on nearest health facility status.

**Table (4.25) Pathway Analysis on Nearest Health Facility Status**

<b>Nearest Health Facility Service Status</b>	<b>Respondents</b>	<b>Percentage</b>
Good	31	7%
Neutral	291	64%
Poor	131	29%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data



According to table (4.25), 7% of survey participants responded nearest health facility status is Good, 64% responded Neutral and 29% responded the nearest health facility status is Poor.

#### 4.7.3 Pathway Analysis on Reason why Respondent not Seeking Health Facility

The following table shows the Pathway Analysis on reason why respondents not seeking health facility if they suffer of any health issue.

**Table (4.26) Pathway Analysis on the Reason why Respondent not Seeking Health Facility**

<b>Reason why respondent not seeking health facility</b>	<b>Respondents</b>	<b>Percentage</b>
Not sure where to go	67	15%
Cost	53	12%
Difficulties with transportation/ distance to clinic	34	7%
Do not trust medical workers	29	6%
Do not like attitude of medical workers	4	1%
Cannot leave work (Overlapping work hours with medical facility working hours)	96	21%
Do not want to find out that something is really wrong	42	9%
No Responds	128	29%
<b>Total</b>	<b>453</b>	<b>100%</b>

Source: Survey Data

According to table (4.26), pathway analysis on the reason why respondents are not seeking health facility for health issue, 29% did not give answer, 21% responds because of cannot leave work (Overlapping work hours with medical facility and working hours), 15% were not sure to where to go, 12% did not seek due to cannot effort the cost, 7% had difficulties with transportation/ distance to health facility, 6% do not trust health facility's medical workers and 1% dislike the attitude of medical workers.

## **CHAPTER V**

### **CONCLUSION**

#### **5.1 Findings**

Only 453 respondents have been accounted from 500 Sample sites due to survey limitation. Survey results found out that there were 396 respondents were Non-TB participants and 57 responded was found to be TB patients. 38% were Normal Worker occupational group, 37% were dependents, 14.5% were students, 6% Company Staff, 4% were shop owners and 0.5% were Government staff.

On the analysis of Socio-Demographic data, respondents from age group of 31-40 years and 41-50 years which equal distribution of 26% per each. Most of the respondents 31% are the age group of <30 years and age group >50 respondent only 17%. All age groups had been participated in the Survey. 82% of respondents lived less than a kilometer from nearest health facility. Among 453 respondents, 36% of the respondents were Male with non-TB respondents and 51% were Female. 7% of respondents were Male and 6% Female and they are currently TB patients. Around about 51% of all respondents were high level and university level but 49% where middle and primary level (only can read and write).

From the studied of Signs and Symptoms of TB disease, 80% responded on Cough that lasts longer than 3 weeks one of the reason, 76% about fever without clear cause that lasts more than 10 days as a symptom, 51% weight loss, 28% fever, 12% of Nausea and less than 10% each on chest pain, shortness of breath, ongoing fatigue from 453 respondents had this concern. 401 respondents out of 453 (89%) heard about MDR-TB which only 11% do not know Knowledge about how to prevent getting TB disease. Not knowing about MDR-TB, they might not aware it can changed in XDR-TB if a person not taking the treatment completely. MDR TB prevalence is depends on population's knowledge and awareness and only people will perform good behavior associated to health. 80% of studied population believes on Covering mouth and nose when coughing or sneezing, 62% on through good nutrition, 26% on washing hands after toughing items in public places, 13% on avoid shaking hands.

10%-2% believe on avoid, sharing dishes, closing window at home and by praying can prevent getting TB disease.

On the respondent's knowledge about diagnosis of TB, nearly 400 respondents Had knowledge that the diagnosis of TB is needed to investigate the sputum AFB and Chest X-Ray accounting for 87% and 67% respectively. Total 89% (78%, 352 of non-TB and 11% of 53 TB Patients) knew TB Diagnosis and Treatment of TB is free of charge. 11% respondents did not knew TB Diagnosis and Treatment is free of charge and responded as 5% of non-TB and 0.6% of TB patient answered reasonable, 3% of non-TB and 0.2% of TB patient answered moderately expensive and 2% of non-TB and 0.2% of TB patient answered were very expensive. Knowledge of accessible area of TB treatment, 89% knew about National TB Programme (NTP), 88% knew about Government Hospital, 86% knew about Township Health Centers, 62% knew about Private Hospitals and 11% had responded about TB treatment about Pharmacy Shops. Awareness raising activities of health education should gradually lead, target and conduct to behavior changed individually.

Finding on Attitude and practice, 42% of participants responded to be calm and ready to farther necessity but 26% responds as Surprise, 17% Fear, 12% Shame and less than 5% responded Embarrassment and Sadness or Hopeless. 369 respondent (81%) answered they will talk to Doctor or Medical Worker, if they have TB Disease and second high answer was to talk with Spouse and Parent which is good to talk to when people are suffering TB, only then the disease will directly towards to treatment rather than unnecessary burden.

25% on non-TB and 5% of TB patient responded the answer that Most people rejected, 26% of non-TB and 3% of TB patient responded most people are friendly but they generally try to avoid and 37% highest and 4% of TB patients responded that the community mostly supports and helps person with TB is their area. Attitude and practice question on Drinking and Smoking can be utilize while on TB treatment, for Smoking 90% responds No but 10% responded Yes, for Drinking 73% responded No but 27% responded Yes. Attitude and Practice question to sleep separate with spouse and family member while on TB treatment, 29% had responded not required, 41% on first 2-3 Months, 22% on 6-8 months and 8% responded that they don't know. From the question on Sputum re-testing during TB treatment, 40% responds Once after every 3, 5, 8 Months and 23% responds they do not know, 19% respond Not required

and 18% responded once after every 2, 5, 6 Months. Overall analyzing in the attitude and practice behavior, there is still poor behavior and needed to be improved.

Pathway analysis on the question of health facility seeking if you have thought you had Tuberculosis, 56% participants responds to go to the nearest health facility, 29% responded to General Practitioner (GPs), 11% responded to go to traditional healer and only 4% responds to Pursue other self-treatment options (herbs, etc.). 7% of survey participants responded nearest health facility status is Good, 64% responded Neutral and 29% responded the nearest health facility status is Poor. Pathway analysis on the reason why respondents are not seeking health facility for health issue, 29% did not give answer, 21% responds because of cannot leave work (Overlapping work hours with medical facility and working hours), 15% were not sure to where to go, 12% did not seek due to cannot effort the cost, 7% had difficulties with transportation/ distance to health facility, 6% do not trust health facility's medical workers and 1% dislike the attitude of medical workers.

On the suggestion related to health education, activities for health for health education should be conveyed to cover both rural and urban population by using local languages in clear and easily understandable format. Health education should be widely spread to all people of any age, sex, occupational status and any educational status. Not only health education activities but also prevention measures are needed upgrade the health status of the population. To reach the national and global TB targeted community is the main role to participate.

## **5.2 Recommendations**

From the survey study in Thingyangyun township about the knowledge and practice related to TB knowledge about signs and symptoms TB including MDR TB, prevention measures, diagnosis and treatment. Most of the studied population seems to have good knowledge but some still had wrong thought and lack of knowledge in some of the main areas of TB. From the survey finding respondents are very much aware of knowing TB information from Broadcasting, such as Television and Radio.

Furthermore, Ministry of Health and Sports and Ministry of Information is needed to cooperate more on broadcasting health education programs to strengthened more awareness about TB. Now a day most of people are very much utilized on Social media like Facebook, Youtube, Twitter, Instagram, WeChat, Google etc., to strengthen more on TB health education programs. A systematic review of all these

studies would be the next step recommended. Implementing these evidence into NTP as included in the strategic Direction III; Intensified Research and Innovation of the 2016-2020 National Strategic plan for TB Control, with a strong advocacy, communication, and social mobilization strategy, is absolutely necessary for our country, Myanmar, to escape from being a TB high-burden country in the world.

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