KNOWLEDGE AND HEALTH SEEKING BEHAVIOUR AMONG TUBERCULOSIS PATIENTS AT ATAS CLINIC, KUCHING

Noor Baizura Binti Hj. Jamali

Master of Public Health
2013
KNOWLEDGE AND HEALTH SEEKING BEHAVIOUR AMONG TUBERCULOSIS PATIENTS AT ATAS CLINIC, KUCHING

NOOR BAIZURA BINTI HAJI JAMALI

A thesis report submitted in partial fulfillment of the requirement for the Master of Public Health

Faculty of Medicine and Health Sciences
UNIVERSITI MALAYSIA SARAWAK
2013
ACKNOWLEDGEMENTS

It gives me great pleasure in expressing my gratitude to all those people who have supported me and had their contributions in making this dissertation possible.

I would like to express my deepest gratitude to my supervisors, Dr. Haironi Binti Yusoff and Dr. Helmy Bin Hazmi, for their excellent guidance, caring, patience, and providing me with an excellent atmosphere for doing research. I would like to extend my thanks to the Dean and Deputy Dean on Faculty of Medicine and Health Sciences, all lecturers of MPH, UNIMAS, especially to Tan Sri Datu Prof Dr Mohamad Taha Arif, Director of Sarawak State Health, Datu Dr Zulkifli Bin Jantan, Head of Kuching Divisional Health Office, Dr. Kamarudin Bin Lajim, Dr Maila Bt. Mustapha (FMS), staffs at the ATAS clinic for the on-going guidance, support, comments and information in this study.

I would also like to thank my fellow MPH friends, who helped and supported me during ups and downs to complete this study.

I would also like to thank my family who were always supporting me and encouraging me with their best wishes. They were always there cheering me up and stood by me through the good times and bad.

I would never have been able to finish my dissertation without the guidance of my supervisors and lecturers, help from friends, and support from my family.
ABSTRACT

(Tuberculosis (TB) remains the major public health problems and a leading cause of morbidity and mortality in developing countries. In 2010, incidence of TB (per 100,000 people) in Malaysia was last reported at 82 (World Bank Report, 2012). The notification rate is still high, for example in Sarawak, in 2003 the rate was 79.9 per 100,000 population, about twice the national target, 40 per 100,000 population. Sarawak is ranked third in Malaysia despite gradual decline since 2001 (Sarawak State Health Department, 2004).) This was a cross-sectional research to determine socio-demographic characteristics, level of TB knowledge and health seeking behaviour of TB patients at ATAS clinic, Kuching. A convenient sample of 220 data among the TB patients attended ATAS clinic were collected using structured questionnaires by face to face interview. The questionnaires were pre-tested in the non-sampled area. The results from this study showed that the TB was more commonly seen in married male, working adult, malay with secondary school educational background. The level of TB knowledge was poor in elderly (>70 year old), unemployed and primary school of educational background. The health seeking behaviour showed most of the respondents preferred government facilities in their treatment of choice, however there was delayed in seeking initial treatment. There were significant difference of health seeking behaviour and level of TB knowledge among the respondents. Therefore, the awareness of the disease among community still need to be increased and the public health sectors need to strengthen the health programmes and activities to combat the disease.

Keyword: tuberculosis, health seeking behaviour, knowledge of tuberculosis
ABSTRAK

Tajuk: Pengetahuan dan Tingkah Laku Mendapatkan Rawatan Dikalangan Pesakit Tuberkulosis di Klinik ATAS, Kuching.

mengukuhkan lagi aktiviti-aktiviti yang dilaksanakan oleh pihak kesihatan untuk memerangi penyakit ini.

Kata kunci: tuberkulosis, tingkah laku mendapatkan rawatan, pengetahuan tentang tuberculosis
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii - v</td>
</tr>
<tr>
<td><strong>CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1.1 BACKGROUND OF STUDY POPULATION</td>
<td>4</td>
</tr>
<tr>
<td>1.1.2 SIGNIFICANCE OF STUDY</td>
<td>5</td>
</tr>
<tr>
<td>1.2 LITERATURE REVIEW</td>
<td>6</td>
</tr>
<tr>
<td>1.2.1 INTRODUCTION</td>
<td>6</td>
</tr>
<tr>
<td>1.2.2 TUBERCULOSIS</td>
<td>8</td>
</tr>
<tr>
<td>1.2.3 KNOWLEDGE OF TUBERCULOSANS</td>
<td>13</td>
</tr>
<tr>
<td>1.2.4 HEALTH SEEKING BEHAVIOUR</td>
<td>18</td>
</tr>
<tr>
<td>1.3 RESEARCH OBJECTIVES</td>
<td>21</td>
</tr>
<tr>
<td>1.3.1 GENERAL OBJECTIVE</td>
<td>21</td>
</tr>
<tr>
<td>1.3.2 SPECIFIC OBJECTIVES</td>
<td>21</td>
</tr>
<tr>
<td>1.4 RESEARCH HYPOTHESES</td>
<td>22</td>
</tr>
<tr>
<td>1.5 RESEARCH QUESTIONS</td>
<td>22</td>
</tr>
<tr>
<td>1.6 LIST OF VARIABLES</td>
<td>22</td>
</tr>
<tr>
<td>1.6.1 DEPENDENT VARIABLE</td>
<td>22</td>
</tr>
<tr>
<td>1.6.2 INDEPENDENT VARIABLES</td>
<td>22</td>
</tr>
<tr>
<td>1.7 CONCEPTUAL FRAMEWORK</td>
<td>24</td>
</tr>
</tbody>
</table>
CHAPTER 2: METHODS AND MATERIALS

2.1 METHODS

2.1.1 STUDY DESIGNS

2.1.2 STUDY POPULATION

2.1.3 PLACE OF STUDY

2.1.4 SAMPLE SIZE

2.1.5 SAMPLING METHOD

2.1.6 INCLUSION AND EXCLUSION CRITERIA

2.1.7 DATA COLLECTION PROCEDURE

2.1.8 ETHIC COMMITTEE APPROVAL

2.2 MATERIALS

2.2.1 INSTRUMENT DEVELOPMENTS

2.2.2 DATA MANAGEMENT AND QUALITY CONTROL: TRANSLATION

2.2.3 DATA MANAGEMENT AND QUALITY CONTROL: PILOT STUDY

2.3 OPERATIONAL DEFINITIONS

2.4 DATA ENTRY AND ANALYSIS

2.5 RESEARCH FRAMEWORK

CHAPTER 3: RESULTS

3.1 INTRODUCTION

3.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

3.3 KNOWLEDGE ON TUBERCULOSIS
5.2 CONCLUSION

REFERENCES 59

ORGANIZATION / APPENDIX 64

APPENDIX I: INFORMED CONSENT (ENGLISH AND BAHASA MELAYU) 65

APPENDIX II: QUESTIONNAIRE FORM (ENGLISH AND BAHASA MELAYU) 67

APPENDIX III: RESPONDENT INFO SHEET 80

APPENDIX IV: ETHIC COMMITTEE APPROVAL LETTER 84

APPENDIX V: GANT CHART 85
CHAPTER 1
INTRODUCTION AND LITERATURE REVIEW

1.1 Introduction

Tuberculosis (TB) remains the major public health problems and a leading cause of morbidity and mortality in developing countries (Raviglion, 1995). According to World Health Organization (WHO) in 2005, TB is the second leading cause of death; about 8.4 million are estimated to develop TB each year while two million deaths are estimated annually due to TB. However, 90% of all TB cases are in developing countries, affecting mostly young adults in their most productive years (WHO, 2005).

Tuberculosis germs are spread through the air from patients with active pulmonary tuberculosis though the infection is influenced by the state of healthiness of the immune system. In situations where the immune system is strong, the TB infectivity is checked and the victim remains with dominant infectious unification (Frieden, 2003). In the last few decades, most TB infected persons remain healthy carriers with only 5-10% ever developing active TB. These few kept the epidemic alive by transmitting the germ to their close contacts.

Malaysia, as a rapidly developing country in Asia, also suffers from TB. In 2010, incidence of TB (per 100,000 people) in Malaysia was last reported at 82 (World Bank Report, 2012). WHO ranks Malaysia as a country of “intermediate” burden of TB and describes its TB notification is “high relative to its level of development”. Multidisciplinary strategies launched to fight TB infection include BCG vaccination for all newborn babies; screening for symptomatic and high risk groups; raising awareness of
the disease via mass media; training of health workers about the disease; researches of prevalence and resistance; case detection and free treatment using WHO DOTS strategy.

Malaysia has a well-organized Tuberculosis Control Programme (TBCP) which provides easy access and free-of-charge services to patients. Despite that, the notification rate is still high, for example in Sarawak, in 2003 the rate was 79.9 per 100,000 population, about twice the national target, 40 per 100,000 population. Sarawak is ranked third in Malaysia despite gradual decline since 2001 (Sarawak State Health Department, 2004).

The purpose of TB case detection is to detect TB patients as early as possible and to cure them, to stop the transmission by strengthening the source of infection (Aoki, 1996). Currently, active case finding, i.e. attempts to screen populations at large or to target specific populations, is much less widely used than passive case finding (i.e. only those who come to the health facilities are screened and diagnosed) (Murray, 1994).

The complications of late treatment may cause disabilities and subsequently decrease in productivity. The Direct Observed Treatment Short course (DOTS) is the main strategy in the control of TB. It was started in 1995, includes diagnosis through bacteriology and standardized short-course chemotherapy with full patient support (WHO, 2002). Despite the effectiveness of the DOTS strategy, delays in seeking care among TB patients are common in a number of developing countries (Zhang, 2007).

According to WHO (2006), the control of TB infection can be achieved effectively is by prompt and adequate treatment in individuals and community. However, the detection of TB cases in Sarawak relies in passive case detection where the success is known to be influenced by factors such as patients' knowledge about the disease, their
motivation, degree of diagnostic suspicions of health care providers, quality of laboratory services (Dujardin, 1997). For patients who have TB symptoms and decided to go for medical attention, they have a few options such as the government health clinics or the private healthcare services which provided consultation, laboratory and imaging (x-rays) facilities. Most areas in Sarawak are well-covered by health facilities.

Recent studies have shown that health-care seeking behavior of chest symptomatics is inadequate (Enwuru, 2002) and health services-related factors have led to sub-optimal utilization of diagnostic processes (Dandona, 2004). TB control programs of the high TB burden countries need universal coverage of DOTS strategy, political commitment and increased case detection rate (Ibrahim, 2002). Various studies have reported about the delays in diagnosis of tuberculosis in different groups of populations. It is not clear if active case finding would improve the efficacy of the current global DOTS strategy (DEN Boon, 2008).

TB is a social disease, and healthcare-seeking behaviour among patients is influenced by gender, age, socioeconomic and social status of female, type of illness, access to services, and perceived quality of the service (Tipping, 1995), which often interacts in a complex network. People can be confused as to the implications of TB symptoms, costs of transportation, the social stigma, the high cost of medication, and perceptions of patients about clinic facilities as unfriendly, and all these contribute to the complexity of the disease (Rubel, 1992).

This study is therefore a description of the health seeking pattern of TB patients in ATAS clinic, Kuching, it tends to identify the prevailing procedure, therapy and challenges in the process of seeking for treatment of TB in the clinic. This study is guided
by the health care utilization theory originally propounded by Anderson and Newman (1973) and various other refinements especially by Weller, Ruebush and Klein (1997) and Rauyajin (1991). It emphasized the three factors influencing health behaviour as predisposing, enabling and the need. These factors are also delineated as three different classifications that explained decisions to choose a particular treatment regimen. The predisposing factors include; age, gender, religion, previous health experiences, educational status, knowledge about the illness. These focus on the personal or familiar attributes of the person needing treatment. The enabling factors include the availability of services, financial resources available to the care seeker; this may include health insurance, familiar or social support network. The need factors are perception of severity, the social cost of treatment process (number of days needed to be off work or school, pattern of help from outside) etc. The three factors lead to the choice of treatment options either home remedies, traditional healers, private medical facility or public health service and the consequences.

1.1.1 Background of the Study Population

Sarawak, also known as “Land of Hornbill” (Bumi Kenyalang), is the largest state in Malaysia. It stretches for over 750 kilometres along northeast coastline of Borneo, interrupted in the north by about 150 kilometres of Brunei coast. Sarawak is separated from the Indonesian part of Borneo (Kalimantan) by ranges of high hills and mountains that are part of the central mountain range of Borneo. These get higher to the north and culminate near the source of the Baram River with the steep Mount Selidang (4504 ft) at central plateau of Usun Apau, Mount Batu Lawi, Mount Mulu in the park of the same name and Mount Murud with the highest peak in Sarawak (Sarawak Information Centre).
Kuching, officially the City of Kuching, and formerly the City of Sarawak, is the capital and most populous city of the East Malaysian state of Sarawak. 2010 Census reports that Kuching urban population is 660,000 (Kuching City South – 150,000; Kuching City North – 170,000; Padawan- 3rd Mile/ 7th Mile/ 10th Mile – 340,000) and is consisted of Chinese (330,000), Malays (260,000), Ibans (70,000) and other ethnic groups. The Dayaks, the grouping of local indigenous tribes, can be categorized into Ibans, Bidayuhs and Orang Ulu, among others.

The Anti-Tuberculosis Association of Sarawak was registered on the 1 November, 1955 and presently headed by a President (Executive Council) and a Vice President and the Council consisting of elected members and chairman of branches and Ex-officio. The Ex-officio of the council shall consist of one person nominated by each of the following voluntary organizations. Malaysia Medical Association, Sarawak Branch, State Health Department, Sarawak Federation Women's Institute, Sarakup Indu Daya, Sarawak, Dayak Bidayuh National Association, Sarawak Dayak National Union, Persatuan Melayu Sarawak and the Orang Ulu Association.

The ATAS clinic provides free screening and treatment for TB which include consultation, interval X-rays and diagnostics as well as medication for six months or more. This study was conducted at ATAS clinic because it is a DOTS centre which conducted anti-tuberculosis clinic for Kuching and outside Kuching area. Most of the TB patients referred here for investigations, consultation, treatment and follow ups. Therefore, it is easier to capture respondents for this study at this clinic setting. Besides that, the clinic is easy to be accessed as it is situated and linked by roads.
1.1.2 Significance of Study

This study will contribute to the advancement of understanding the level of knowledge among TB patients and help in planning better programme to improve patients' understanding and awareness of the TB infection. The outcome of this study will also lead to a better direction in the planning and the implementation of antituberculosis programmes by identifying the patients' health seeking behaviour and level of TB knowledge. Thus, by identifying these among TB patients of ATAS clinic will then help to improve and ensuring a better quality of TB preventive and curative services offered in primary health clinics and improve the compliance of medications.

The findings of this study will also give valuable information for improving patients' compliance and adherence to the medications and follow ups in mostly Kuching areas.

1.2 LITERATURE REVIEW

1.2.1 Introduction

Tuberculosis, or TB, is an infectious bacterial disease caused by *Mycobacterium tuberculosis*, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease (WHO, 2006).

In 1993, the World Health Organization (WHO) declared a state of global emergency for TB, due to the steady increase of the disease worldwide. In 1995 the DOTS (directly observed treatment, short course) strategy was established as the key intervention to achieve tuberculosis control worldwide. The global targets of this
strategy are to achieve 70% case detection and 85% cure rates by 2005 (WHO, 2002). In 2003, DOTS programmes successfully treated 84% of all registered new smear positive patients, but detected only 28% of the estimated tuberculosis cases in the world (WHO, 2003).

Therefore, the target of 70% case detection might not be reached until 2013, unless interventions are made that are able to increase the case-detection rate. Early diagnosis and prompt effective therapy form the key elements of the tuberculosis control programme. Delay in diagnosis results in increased infectivity in the community and it is estimated that an untreated smear-positive patient can infect, on average, 10 contacts annually and over 20 during the natural history of the disease until death (Styblo, 1991). Delay in tuberculosis diagnosis may also lead to a more advanced disease state at presentation, which contributes to late sequelae and overall mortality. Smear-positive cases are more likely to infect other individuals.

Of the 22 countries of the Eastern Mediterranean Region of WHO, 9 contribute to 94% of the tuberculosis cases in the Region: Pakistan (43% of tuberculosis cases), Afghanistan (12%), Sudan (8%), Iraq (7%), Islamic Republic of Iran (6%), Somalia (6%), Morocco (5%), Egypt (4%) and Yemen (3%). The low case detection rate in the Eastern Mediterranean Region is chiefly due to the low detection rates in Pakistan and Afghanistan (3% and 9% in 2000) respectively (WHO, 2006).

About one-third of the world's population has latent TB, which means people have been infected by TB bacteria but are not (yet) ill with disease and cannot transmit the disease.
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 (WHO, 2011).

Tuberculosis mostly affects young adults, in their most productive years. However, all age groups are at risk. Over 95% of cases and deaths are in developing countries. People who are co-infected with HIV and TB are 21 to 34 times more likely to become sick with TB. Risk of active TB is also greater in persons suffering from other conditions that impair the immune system (WHO, 2012).

About half a million children (0-14 years) fell ill with TB, and 64 000 children died from the disease in 2011. Tobacco use greatly increases the risk of TB disease and death. More than 20% of TB cases worldwide are attributable to smoking (WHO, 2012).

TB occurs in every part of the world. In 2011, the largest number of new TB cases occurred in Asia, accounting for 60% of new cases globally. However, Sub-Saharan Africa carried the greatest proportion of new cases per population with over 260 cases per 100 000 population in 2011 (WHO, 2012).

In 2011, about 80% of reported TB cases occurred in 22 countries. Some countries are experiencing a major decline in cases, while cases are dropping very slowly in others. Brazil and China for example, are among the 22 countries that showed a sustained decline in TB cases over the past 20 years. In the last decade, the TB prevalence in Cambodia fell by almost 45% (WHO, 2012).
1.2.2 Tuberculosis

Tuberculosis (TB) is one of the world’s deadliest diseases, one third of the world’s population are infected with TB. In 2011, nearly 9 million people around the world infected with TB disease. There were around 1.4 million TB-related deaths worldwide and a leading killer of people who are HIV infected. A total of 10,528 TB cases (a rate of 3.4 cases per 100,000 persons) were reported in the United States in 2011. Both the number of TB cases reported and the case rate decreased; this represents a 5.8% and 6.4% decline, respectively, compared to 2010 (CDC, 2011).

Since the integration of TB control programme in public health sector in 1994, TB Control programme performance had improved in prevalence and mortality which shows a declining trend since 1995 (Global Tuberculosis Control 2010, WHO).

The purpose of TB case detection is to detect TB patients as early as possible, to cure them, and to stop the transmission by strengthening the source of infection (Aoki, 1996). Currently, active case finding, i.e. attempts to screen populations at large or to target specific populations, is much less widely used than passive case finding (i.e. only those who come to the health facilities are screened and diagnosed) (Murray, 1994).

The impact target are to halt and reverse the incidence of TB and to halve TB prevalence and death rates by 2015 compared with baseline of 1990 as per outline in Stop TB Partnership targets and United Nation Millenium Development Goal (MDG) Target 6c and Indicator 6.9.
The prevalence and death rates in 1990 were 227 cases per 100,000 population and 110 cases per 100,000 population in 2009. The mortality rate in 1990 was 26 cases per 100,000 population and 8.8 cases per 100,000 in 2009.

Malaysia, as a rapidly developing country in Asia, also suffers from TB, which remains a difficult disease to overcome. It registers the highest number of deaths from any infectious disease, and the number of deaths rose steadily in the mid to late 1990s. In 2010, incidence of TB (per 100,000 people) in Malaysia was last reported at 82 (World Bank Report, 2012). WHO ranks Malaysia as a country of “intermediate” burden of TB and describes its TB notification as “high relative to its level of development”. Multidisciplinary strategies launched to fight TB infection include BCG vaccination for all newborn babies; screening for symptomatic and high risk groups; raising awareness of the disease via mass media; training of health workers about the disease; researches of prevalence and resistance; case detection and free treatment using WHO DOTS strategy.

Since 1995 up to 2002, the incidence of TB in Malaysia has slowly increased. The incidence rate was 59.8 per 100,000 population in 1994 rising to 65.6 in 1999 and to 65.9 in 2000 (Aziah, 2004). However, in 2002, the incidence rate has declined to 58.7 per 100,000 population. The strengthening of the DOTS (directly observed treatment, short course) programme by the Ministry of Health has contributed to the declined incidence of TB in Malaysia. If this pattern of slowly declining were to be maintained, the target incidence for 2010 can be achieved. The targeted incidence rate for Malaysia is less than 40 per 100,000 populations for all forms and 20 per 100,000 population for infectious forms (WHO, 2010).
In Sarawak, however, the incidence rate still remains above the target of less than 40 per 100,000 populations. Last year, in 2010, the incidence rate of tuberculosis was as high as 76.3 per 100,000 population (Annual Report Sarawak State Health Department, 2010).

Malaysia has a well-organized Tuberculosis Control Programme (TBCP) which provides easy access and free-of-charge services to patients. Despite that, the notification rate is still high, for example in Sarawak, in 2003 the rate was 79.9 per 100,000 population, about twice the national target, 40 per 100,000 population. Sarawak is ranked third in Malaysia despite gradual decline since 2001 (Sarawak State Health Department, 2004). In Sarawak, the slow decline pattern of TB incidence and persistently high incidence in certain areas are related to delay in case detection (Chang, 2007).

A striking feature of TB, which is apparent in prevalence surveys from most parts of the world, is that TB is more a disease of men than of women. Thus, gender is an important aspect of TB epidemiology. The difference between men and women appears to be larger in Asia, especially in the SEARO region and to a lesser extent in the WPRO region, than in sub-Saharan Africa (AFRO region). It is unclear why male-female differences in tuberculosis prevalence appear to be larger in many Asian surveys than in those from Africa. Whether this reflects, for example, lower (re)infection rates of Asian women due to more restricted participation in society, or higher breakdown rates in African women due to inadequate nutrition, is unknown.

In many countries the private sector treats a substantial proportion of TB cases and may not notify many cases that come to its attention, in particular if notification is
not mandatory. Women may have less access to this form of health care, especially where it is expensive.

The socio-economic and cultural factors may be important in two ways: first, they may play a role in determining overall gender differences in rates of infection and progression to disease, and second, they may lead to gender differentials in barriers to detection and successful treatment of TB. Both have implications for successful TB control programmes. Gender differentials in social and economic roles and activities may lead to differential exposure to tuberculosis bacilli. The general health/nutritional status of TB-infected persons affects their rate of progression to disease. In areas where women's health is worse than men's (especially in terms of nutrition and human immunodeficiency virus status), women's risk of disease may be increased. A number of studies suggest that responses to illness differ in women and men, and that barriers to early detection and treatment of TB vary (and are probably greater) for women than for men. Gender differences also exist in rates of compliance with treatment. The fear and stigma associated with TB seems to have a greater impact on women than on men, often placing them in an economically or socially precarious position. Because the health and welfare of children is closely linked to that of their mothers, TB in women can have serious repercussions for families and households (Hudelson, 1996).

Few studies done showed that the majority of cases were in the 21-60 year old age group. This is also true in most other studies done regarding the prevalence of tuberculosis in Malaysia. Hayati et. al (1993) reported similar findings. The reason for this could be the patients who were working were exposed to infections from their work environment. Infection in this age group can have an impact on the country's
economy, since this age group is productive and contributes the most to the economy (Jetan, 2010).

However, a study conducted by Jetan CA et. al (2010) showed that most patients were unemployed, followed by housewives, laborers, students and shop assistants. This finding goes against the theory that those who work are more likely to be exposed at their work place. A crowded house with inadequate basic necessities, such as a clean water supply, electricity and sewage disposal, in combination with poor nutrition, could all contribute to susceptibility to infection. Most laborers live in a shared house with at least 10 other people in unsatisfactory conditions (Jetan, 2010).

Although most TB infection in endemic areas is acquired from sources unknown to the individual, close contact with a smear positive tuberculosis (TB) patient greatly increases the risk of infection and subsequent disease [(Crampin (2004); Sinfield (2006)]. Research investigation done in rural Malawi showed 5% of adult TB cases reported a spouse with prior TB (Glynn, 2007). Wives are particularly likely to have intense exposure to TB, through daily close contact and nursing. The spouse may also be exposed to other TB patients, if they accompany their partner to outpatient facilities or provide nursing care in the hospital ward. Spouses of smear positive patients are thus a high risk group, and they are also an easily identifiable group who can be accessed through their nursing role for assessment of risk of TB and offered preventive therapy. The spouse-spouse tuberculosis association and the risk of prevalent tuberculosis and HIV amongst spouses of TB patients have been described [Jurj, (2006); Suggaravetsiri, (2003)] but the preventable risk in subsequent years has not been quantified.
Increasing emphasis has been placed in recent years on public-private partnerships in the health sector, in recognition of the current distribution of services and patient choices and preferences, and to support the efficient and effective delivery of health services. Health care provision is considered conventionally to be the responsibility of the public sector and government in developing countries, as reflected in the Alma Ata Health Declaration and other key global mission statements (WHO Alma-Ata, 1978). However, by the mid-1980s, the role of government in health care provision had changed (Bennette, 1997), with the World Bank recommending a reduction in the level of government involvement in health care and promoting investment from the private sector. The WHO held a series of meetings from 1990, focusing on the role of the private sector, and in developing countries, public-private partnerships began to be adopted especially in areas of high need – reproductive health care, diarrhoea, malaria, HIV, sexually transmitted infections (STI) and TB. Many largely inter-related circumstances worked to support the initiation of public private partnerships (PPP) in developing countries (Saw, 2008).

Women, younger persons, and residents of southern Vietnam were more likely to seek treatment in the private sector. Urban populations and those with the highest socioeconomic status were most likely to seek private care, but these differences were not significant (CDC, 2011).

1.2.2 Knowledge of Tuberculosis

Knowledge is defined as facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject and