BELIEFS AGAINST TB RELAPSE UNDER DOTS (2ERZH/6EH) PROGRAM IN VIENTIANE, LAO PDR

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ความเชื่อที่ต้านการเป็นซ้ำของวัณโรคภายใต้โปรแกรมการให้ผู้ป่วยกินยาวัณโรคแบบกำกับ ในนครเวียงจันทน์ ประเทศลาว

นายเทพภูธร ซอสวาท

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

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เทพภูธร ซอสวาท : ความเชื่อที่ต้านการเป็นซ้ำของวัณโรคภายใต้โปรแกรมการให้ผู้ป่วยกินยาวัณโรคแบบกำกับ ในนครเวียงจันทน์ ประเทศลาว (BELIEFS AGAINST TB RELAPSE UNDER DOTS PROGRAM (2HRZE/6EH) IN VIENTIANE LAO PDR) อ.ที่ปรึกษาวิทยานิพนธ์หลัก : ศ.นพ.พิเชฐ สัมปทานุกุล, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม : รศ.ดร.พญ.วัชริน สินธวานนท์, 62 หน้า

วัตถุประสงค์: เพื่อศึกษาความแตกต่างในความเชื่อระหว่างกลุ่มผู้ป่วยวัณโรคปอดที่มีการกลับเป็นซ้ำกับกลุ่มที่ไม่มีการกลับเป็นซ้ำ เพื่อระบุความเชื่อที่ต้าน และเสริมการกลับเป็นซ้ำของวัณโรค

วิธีการ: ทำการศึกษาที่สถานพยาบาลวัณโรคของรัฐแห่งหนึ่งในนครเวียงจันทน์ โดยใช้แบบสอบถามที่ผู้วิจัยได้จัดทำขึ้น ประกอบด้วยคำถาม 23 ข้อ ครอบคลุมความเชื่อใน 4 มิติ ที่ได้ผ่านการทดสอบความเที่ยงของเนื้อหาและความชัดเจนของคำถาม ได้ค่าคอนบัคอัลฟา ที่ 0.89 อาสาสมัครประกอบด้วย กลุ่มศึกษาซึ่งเป็นวัณโรคปอดกลับเป็นซ้ำ 22 คน และกลุ่มควบคุมซึ่งเป็นผู้ป่วยวัณโรคปอดที่ไม่กลับเป็นซ้ำ 44 คน แบบสอบถามได้แปลเป็นภาษาลาวและใช้วิธีนัดสัมภาษณ์ซึ่งหน้า อาสาสมัครให้คะแนนโดยใช้ 5 ระดับคะแนนในแต่ละข้อ ทำการวิเคราะห์ข้อมูลเพื่อดูความแตกต่างของกลุ่มโดยใช้ค่าเฉลี่ยของคะแนนรวมทั้งหมดและวิเคราะห์คำถามและมิติต่างๆที่มีผลคะแนนแตกต่างกัน

ผลการศึกษา: คะแนนรวมเฉลี่ย และค่าเบี่ยงเบนมาตรฐานของกลุ่มกลับเป็นซ้ำ และกลุ่มไม่เป็นซ้ำคือ 72.8 (6.63) และ 90.7 (6.62) ตามลำดับ (p= 0.0001) โดยแยกเป็นค่าคะแนนเฉลี่ย พิสัยตามมิติต่างๆ ได้เป็น มิติความเชื่อเกี่ยวกับโรค, 12.5 (2.59) เทียบกับ 18.1 (2.27) มิติความเชื่อด้านสังคม, 14.1 (3.32) เทียบกับ 20.4 (3.83) มิติความเชื่อด้านอนามัยส่วนบุคคล , 21.5 (4.32) เทียบกับ 29.2 (2.68) มิติความเชื่อเกี่ยวข้องกับระบบสุขภาพ, 19.7 (1.69) เทียบกับ 21.7 (1.11)

สรุป: ความเชื่อของผู้ป่วยมีผลต่อการกลับเป็นซ้ำของวัณโรคหลังการรักษา ความเชื่อบางประการและมิติสี่ด้านอันได้แก่ มิติความเชื่อเกี่ยวกับโรค มิติความเชื่อทางสังคม มิติความเชื่อด้านอนามัยส่วนบุคคล และมิติความเชื่อเกี่ยวข้องกับระบบสุขภาพ พบความแตกต่างกันชัดเจนในกลุ่มผู้ป่วยที่มีโรคกลับเป็นซ้ำ และกลุ่มที่ไม่มี การศึกษาลงรายละเอียดต่อไปจะทำให้สามารถเข้าใจความเกี่ยงข้องของการเกิดผลนี้ได้

สาขาวิชา การพัฒนาสุขภาพ ลายมือชื่อนิสิต .....

ปีการศึกษา 2555 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

#5474910030: MAJOR HEALTH DEVELOPMENT
KEY WORDS: BELIFS/ TB RELAPSE/ DOTS PROGRAM/ VIENTIANE

THEPPHOUTHONE SORSAVANH: BELIEFS AGAINST TB RELAPSE UNDER DOTS (2ERZH/6EH) PROGRAM IN VIENTIANE, LAO PDR. ADVISOR: PROF. PICHET SAMPATANUKUL, M.D., CO-ADVISOR: ASSOC.PROF. WACHARIN SINDHVANANDA, M.D., Ph.D., 62 pp.

Objective: To evaluate the difference in beliefs between patients who had and had no TB relapse in order to reveal the beliefs against and facilitating TB relapses.

Method: The study was conducted in a 9 TB care centers in Vientiane. 23-item, lao version questionnaire of beliefs regarding TB was conducted. The volunteers were treated pulmonary TB patients comprising 22 of relapse and 44 of non relapse. A face-to-face interview was done upon appointment. The volunteers gave a score to each question item. A likert scale of 5 was used. The analyses aimed at the difference in means of the total scores of the two groups as well as the depiction of items and dimensions that gave different means scores.

Result: The mean scores and standard deviations were 72.8 (6.63) and 90.7 (6.62) for 'relapse' and 'non relapse' respectively, p= 0.0001. Of the breakdown data, the perceptions of TB disease scores were 12.5 (2.59) and 18.1 (2.27); the means scores of social aspect beliefs,.141 (3.32) and 20.4(3.83); the means scores of the self-care beliefs was 21.5 (4.32) and 29.2 (2.68); the means scores of the health care system beliefs,19.7 (1.69) and 21.7(1.11).

Conclusion: The patients' beliefs could affect relapse of pulmonary tuberculosis. Some items as well as the four dimensions of beliefs-perception of TB disease, social aspect, self-care and health care system were remarkably different between relapse and non-relapse groups. Further probes into these beliefs would bring better understanding of the TB-relapse affects of these beliefs.

Field of Study: Health Development Student's Signature……

Academic Year: 2012 Advisor's Signature……..

Co-advisor's Signature……

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CONTENTS

Page

Page

Page

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER I

INTRODUCTION

1.1 Background and Rationale

Tuberculosis (TB) is an infectious disease that is known easily curable. However, TB becomes a challenge care because it brings about major deaths among other infectious diseases. In 2010, the estimates of global burden of TB are approximately 8.8 million people and TB-related deaths were 1.45 from 8.8 million people (1).

Additionally, the remarkable challenge by TB is TB relapse. The incidence of TB relapse is different among the countries. However, it seems that the incidence in western countries seem to be low and in the developing countries seem to be high. For examples, the incidences of TB relapse of Denmark, and England and Wales and South India was 1.8%, 4.1% and 12.3%, respectively (2-4). In Lao PDR, TB relapse was found 163 (5.22%) from 3,119 cases of the total new pulmonary TB cases (1). Despite the fact that the incidence of TB relapse is not high, but the relapse of TB might lead to undesirable outcomes such as resistance to TB drug, TB carriers, and a higher costs of national TB controls (5-6).

TB relapse is founded associated with TB-treated regimens. In Lao PDR, Directly Observed Treatment Short-Course (DOTS) has been set for national TB control since 1995. Based on the DOTS, a new TB patient is treated by four drugs namely isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E). The duration of treatment is totally eight months. Rifampicin and pyrazinamide are used only the first two months, but Ethambutol and isoniazid are used for the rest of 6 months (2HRZE/6EH). The new TB patients have to

be treated in the DOTS center for two months. For the rest of the course, TB patients are permitted to come to receive TB medicine monthly. Despite the fact that this regimen is approved by WHO, TB relapse and death were significantly found (7).

Other causes of TB relapse or recurrent TB has been studied for years. Risks of recurrent TB are found caused by multiple aspects; for examples, pharmacological aspects, patient aspect, environment and medical system aspect (8-9). It is well known that some regimens are associated with TB resistant, such as the initial treatment regimen of isoniazid and rifampicin only (8). Therefore, the pharmacological aspect has been arranged under the national tuberculosis control program. For patient aspects, poor physical conditions of patients are demonstrated their associations with TB relapse. For examples, diabetes was associated with an increased risk of relapse (RR, 3.89; 95% CI, 2.43 – 6.23) (10); cigarette smoking was increased risk factor of TB relapse (RR 2.5 95% CI 1.23 – 5.21) (11). Nevertheless, many past studies indicated that the major cause of TB relapse is poor adherence to TB therapy (3,12).

Focusing on adherence to TB therapy, some systematic reviews reported the poor adherence are related to firstly health care system accessibility, which are distance to facilities, available transportation, appropriate service time, also available health care providers. However, the important issue is quality of care that is a compassionate care of health care providers (13,14). Secondly, patient perceptions of TB are significantly related to poor adherence. For examples, patients do not believe they have got TB, so they only wanted to be treated for their symptoms; patients ignore taking anti-TB drugs because they feel better or feel worse than they got before treatment or they perceived no improvement (13). Thirdly, psychological factors are observed their associations with the (un)success of TB treatment, such as fears of painful injections lead to avoid treatment. Inappropriate habits also involve in poor adherence. Alcohol/substance abuse leads patients to be

sensitive to anti-TB drugs. Furthermore, socio-cultural factors strongly impact poor adherence to TB therapy. Social stigma to TB patients brings about isolation and ignoring receiving treatments (15). For example, patients disclosure their illnesses (taking drugs, sick leave for visiting doctors) for fear that their employers may discover and they might be fired. On the contrary, social or family supports, such as financial assistance, collecting medication and emotional support, appear to be strong influences on more adherences (13). Additionally, poor economical status is highly associated with poor adherence (13-16). In sum, it seems that factors that link to poor adherence are not only involvement with an aspect of physician and patient interaction. But, they are complexity of social-cultural conditions.

Based on psychological theories, individual actions normally come from an individual decision regarding a specific circumstance. The decision is a kind of mental process that link to socio-cultural factors in terms of values or beliefs (17). Therefore, it is possible that patients who adhere to TB therapy might have some specific beliefs, which might be different from those of patients who do not adhere to TB therapy. If so, it is worth for investigating these specific beliefs for the hope that we can apply specific beliefs of adherence to TB therapy to conduct patients who are poor adherence to become more adherences or to manage some facilitation for adherence. As a result, a decrease of TB relapse would be occurred.

A better understanding of the belief to against TB relapse of new TB patients brings about broad-dimension TB control, which would lead to the effectiveness of TB control. Therefore, this study will be conducted to reveal beliefs against/facilitate TB relapse in Lao patient.

1.2 Research objective

1. To evaluate some difference in beliefs regarding TB between patients who had and had no TB relapse

2. To determine the beliefs against TB relapse

3. To determine the beliefs facilitating TB relapse

1.3 Research hypothesis:

The beliefs of patients who has relapse TB may differ from the beliefs of patients who has not relapse TB

1.4 Conceptual framework

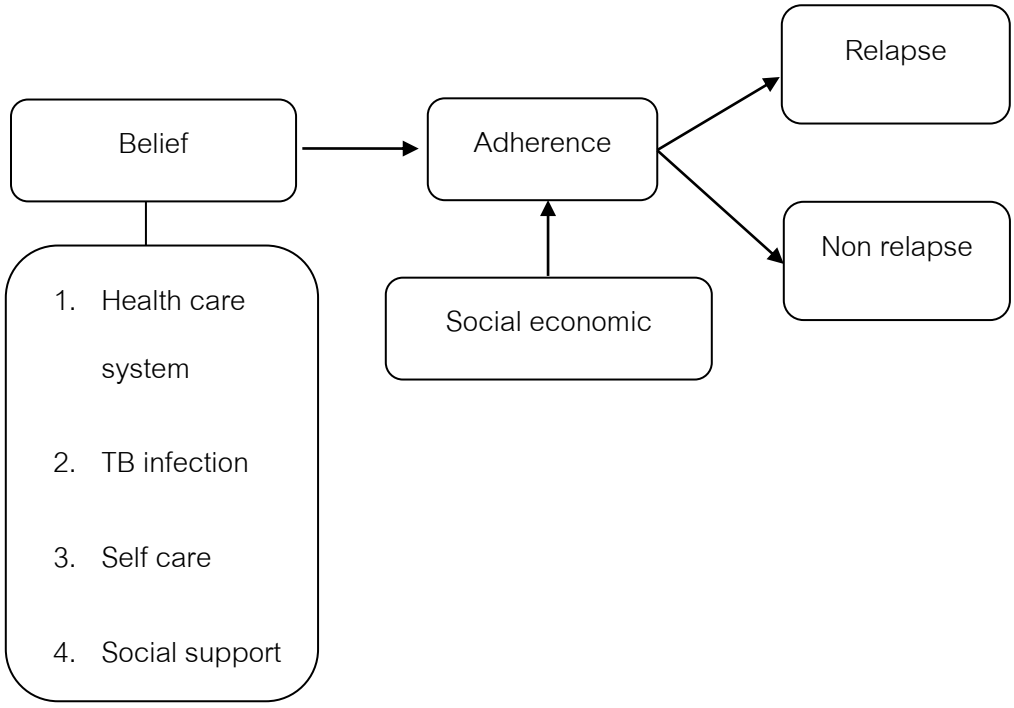

Figure 1: The main conceptual frame work

1.5 Methodology

1.5.1 Key Word

Beliefs, TB relapse, DOTS program and Vientiane, Lao PDR

1.5.2 Operative definition

1) Directly Observe Treatment Short course: is the basic package that underpins the Stop-TB Strategy. In Lao PDR use regimen 2 EHZR/6EH for new TB patients, it is partial DOTS, the time follow up for new TB patient is 2, 5 and 7 months of the period of treatment.

2) Tuberculosis patients: Diagnosis of TB was based on the WHO criteria 2010 including;

1) a positive smear or culture for *Mycobacterium tuberculosis* or

2) negative smear or culture associated with clinical and radiological features and response to treatment consistent with TB or histological findings

3) Cure: A pulmonary TB patient with positive AFB who completed the treatment as prescribed and had a negative sputum result at the end of month 7/8 (Regimen 2ERZH/6EH) or month 5/6 (Regimen 2ERZH/4RH) and on at least one prior occasion.

4) Completed: A pulmonary TB patient with positive AFB, or negative AFB, or extra-pulmonary who completed the treatment as prescribed.

5) TB relapse: A patient previously treated for TB, declared cured or treatment completed, who is diagnosed with bacteriological positive TB (by sputum smear microscopy or culture)

6) TB-related health Beliefs: Based on Health belief Model (Rosenstock, 1966), the beliefs that bring about promoting personal heath are generated by personal perceptions. Four personal perceptions regarding illnesses are identified, which are perceived susceptibility, perceived severity, perceived barriers, and perceived benefits. (18)

7) TB-related perceptions: All perceptions regarding TB of a TB patient would begin with personal TB infection till cultural TB infection. Therefore, components of TB-related perceptions are 1) perception of TB infection 2) perception of health care system 3) perception of self care 4) perception of social support.

1.5.3 Study design

A descriptive study

1.5.4 Study setting

The study will be conducted in 9 TB care centers in Vientiane. All of them, the doctors or nurses who responding about TB_had been trained about TB and DOTs program by National Tuberculosis Center and there are screened by examination of two sputum smears for acid-fast bacilli (AFB).

1.6 Ethic Consideration

This research protocol was submitted for approval by the National Ethics Committee Health Research, Ministry of Health, Lao PDR since February, 07, 2012. The registered number is 46/NECHR.

1.7 Expected Benefit from This study

The results of this study may suggest the need for health worker to learn about patients beliefs regarding TB, that may influence presentation and good adherence for their treatment course and health worker might well consider planning educational program for prevent TB relapse in the future.

CHAPTER II

LITERATURE REVIEW

Review and related literatures

2.1 Directly Observed Treatment Short-Course (DOTS)

National Tuberculosis Control Program (NTCP) of Lao PDR implemented DOTS for national TB control. The treatment consists of an initial 2 months intention phase of isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E), followed by a 6 months continuation phase of EH (2HRZE/6EH).

2.2 TB relapse in aspect of medical perspectives

Relapse of tuberculosis refers to the situation in which a patient becomes a negative result for sputum culture while receiving a full course of TB therapy; but an active TB reoccurs after completion of treatment (19).

TB relapse was reported to be occurred approximately 14.9 ± 5.5 months (21). However, TB relapse was mostly found at 6^{th} month to 12^{th} month after treatment. Thomas A, et al. reported In South India, 77.4% of TB relapse was found within 6 months (4), other reported Nunn. A. J et al. TB relapse was found 78% and 91% within 6 and 12 months respectively (20).

A factor that is highly associated with TB relapse is incomplete receiving anti-TB drugs (or irregular receiving anti-TB drug) as indicated in a course therapy. As the TB-

caused germ is known to easily resist to antibiotics; thus, TB treatment needs rigid disciplines of patients and health care providers. As such, Thomas A, et al. reported events of TB relapse was found twice in patients who irregularly had anti-TB drugs comparing with patients who regularly had anti-TB drugs on treatment (19.8% VS 8.5%; OR = 2.6, 95% CI 1.5 – 4.7) (4). Corresponding to a study of Kwok C, et al. thrice-weekly treatment increased the risk of relapse in comparison of daily treatment (OR = 3.92%, 95% CI 1.78 – 8.63) (21).

Resistance of anti-TB drug by the TB germ is another risk for TB relapse. Regarding the study about resistance to anti-TB drugs by Thomas A, et al. 2005, TB relapse was found 31.2% in patients who had been documented resistance to isoniazid and/or rifampicin comparing with 11.2% in patients who had been documented no resistance (OR 3.6; 95%CI 1.5– 8.5) (4). Some anti-TB drugs are found risky to TB relapse, for examples, pyrazinamide. Pascopella L, et al, 2011. Demonstrated that pyrazinamide mono-treatment was found the adjusted hazard ratio of resistance (aHR) = 2.93; (aHR=2.93, 95% CI = 1.19–7.19). In contrast, an initial treatment regimen of isoniazid and rifampin was found odd ratio of resistance = 2.55 (aHR = 2.5595% CI = 1.04–6.28) (8).

Severity of TB disease is related to TB relapse. In past studies, clinical presentations that were significantly associated with TB relapse, Pascopella L, et al, 2011. reported the persistent positive sputum (aHR = 1.96, 95% CI = 1.36–2.82) (8) and Kwok C, et al, 2004. found the cavitations on initial chest radiograph (RR = 2.39, 95% CI 1.14 – 5.05) (21).

Poor physical conditions or underlying diseases have been identified as TB-relapsed risk factors. Batista JAL, et al 2008. found smoking was a significant risk factor of TB relapse. As such, smoking leads to generally increase incidence of TB relapse (RR 2.5 95% CI 1.23 – 5.21) (11), and Baker. M.A, et al, 2011. demonstrated that diabetes is also associated with an increased risk of relapse (RR, 3.89; 95% CI, 2.43 to 6.23) (10).

2.3 TB relapse in aspects of poor adherence

TB relapse is significantly related to incomplete receiving anti-TB drugs as indicated in a course. As a result, disciplines of treatment are strongly necessary. Because TB therapies need long-term treatments, therefore, patients' poor adherences to anti-TB drugs become major problems. Causes of poor adherence have been studied in aspects of quantitative and qualitative studies. These studies showed a number of socio-cultural risks that might be important than medical risks.

Becker M. H. (1990), Becker, M.H & Maiman, L.A. (1975) described health behavior as dynamic processes and suggests that patients' adherence to treatment is determined by a set of predisposing, enabling, and supportive factors. Predisposing factors include health beliefs and attitudes toward the illness itself and the health services. Enabling factors are related to the availability and accessibility of relevant health services. Supportive factors include emotional and practical support from family, friends, and health personnel (22-23). According to Becker M. H. (1990), patients continuously evaluate their perceived negative or positive factors during the course of treatment, and the sum of different factors which may lead patients in different directions, making different choices, at different stages of treatment (22).

Treatment behavior is embedded in an intricate web of both social and psychological factors. These factors may need to be addressed in patients requiring long-term treatment. Thorensen, C. E (1984) had outlined five sequential steps essential for facilitating patient adherence to treatment (24) as the followings:

1. Patients need to have a clear concept of what the treatment entails, and how health providers expect them to modify their behavior.
2. They need to understand how to control aspects of their behavior.
3. Patient, clinic or treatment barriers to adherence must be identified and modified.
4. Patients require direct and continual feedback on their performance in order to reinforce positive behavior modification.
5. The achievement of social support for the patient in this task proves beneficial.

Health care accessibility is a significant factor. Khan M, et al, 2005. reported that a long distance to a health care facility is an obstacle to the adherence to treatment (25). Also, available transportations are subjected to play a major role. There was a report stated that absenteeism to visit by heath care providers was associated with transportation. Edginton. ME et al, 2002. Health care services access was mentioned as a problem for people in district as they often lack the money for public transportation to the hospital (26) However, Gebremariam. M. K, et al, 2010. found that costs for transportation leaded to a problem of accessibility because patients had to daily come for the medications (27).

Quality of care by health care providers is subjected to be highly related to the adherence. San-Sebastien. M, et al, 2000. found patients who were not informed what to do about side effects tended to stop medication by themselves (28). In addition, Gebremariam. M. K, et al, 2010. reported a compassionate care by health care providers is significantly associated with good adherence to treatment (27).

Patient perceptions regarding TB infection and TB treatment are seemed to be the significant factors since these perceptions directly effect patients' attitudes of self-treatment.

For examples, Jaiswal. A, et al, 2003. reported the adherent patients appeared to be facilitated their self-cares if they had understood the importance of completing treatment (29). Joseph HA, et al, 2004. reported TB patients who believed in treatment efficacy appeared to have their confidences in the medications and medical cares (30).

Patient perception regarding side effects of TB treatment is also significant. San-Sebastien. M, et al, 2000. reported that some patients gave the reasons for stopping medication themselves that they thought they should stop any medication whenever the adverse effects occur (28). Sagbakken M, et al, 2008. reported most of patients complained their experiences of physically exhausting after taking TB medication for a while, in which these physical symptoms impacted their psychological well-beings (31).

Perception of social stigma is a significant risk factor. TB patients usually suffer from stigma and discrimination. Naidoo P, et al, 2009. reported patients accepted that they feared of disclosing TB because they might be quitted from their jobs (32), Gebremariam. M. K, et al, 2006. reported being pointed at by their neighborhoods such as gossiping about their illnesses by the neighbors, and excluding them from social events. In addition, some patients do not want to receive treatment in the health centers which locate in their vicinity because of fear for being identified by the neighbors (27).

Socioeconomic aspects also are related to the adherences. An important aspect of socioeconomic factors, family supports were found associated with financial assistance and motivation. Ngamvithayapong J, et al, 2000. reported that patients could be motivated by family leaders to adhere to TB treatment (33). Khan. M, et al, 2005. described that family supports referred to financial assistance, collecting medication, and emotional support, which seemed to be a strong influence on good adherence to the treatment (25). Additionally, financial aspect is rather significant as well. Sagbakken. M, et al, 2008. reported some complexity of financial problem and adherence to TB treatment. That was

loss of job from TB illness leaded to loss of income; then leaded to non adherence to TB treatment (31).

2.4 Beliefs/perceptions against TB treatment

There are many factors of inhibiting in decision making in relation to accepting the diagnosis such as: don't accept to the diagnosis; poor access to services, cost of opportunity, economic and transportation; stigma; long drug regimens; side effects and need for emotion support. Dick. J, et al 1996, the respondents disbelieved and denial of the diagnosis and they expressed concern about reaction of their peers to their diagnosis, and concern about the impact of the disease on their living was prevalent. Participants illustrated that the duration of treatment impacted on their duties to care for children and provide an income for their family and they identified the need to find support system, in term of someone to talk to, to whom they could relate the practical and emotional concerns which the expressed (34).

2.5 Beliefs/perceptions facilitating TB treatment

The factors facilitating to TB treatment such as: previous positive experiences of known TB patients; positive relationships with health worker; supported from health worker; accurate health information and positive media messages; personal symptoms- feeling ill and. The reasons given facilitating to TB treatment are illustrated by following. Naidoo. P et al, 2009, reported that factors promoting adherence to TB treatmen, there were re-infected

with TB, relief of the symptoms of the disease, known person recover from TB by taking medication and the positive experience of the quality of health care (32).

Perception of TB disease, TB is an infective disease and a challenge in society. Many people think that TB is dirty and usually occurred with poor people and community. Some understand that pollution, drinking alcohols, smoking or hard works are causes of TB. Johansson. E, et al, 1996. reported TB was considered a dirty disease, which mainly affected poor people (35), Liefooghe. R, et al, 1995. reported TB was perceived as a family disease (36), Sagbakken. M, et al, 2008. claimed that most patients perceived birds as a cause or a predisposing factor of TB (31). Edginton. ME, et al, 2002. demonstrated Western belief that was TB spread from the sufferers to environments. However, pollution, smoking or alcohol excesses were associated with TB infections (26).

To be successful and have good outcome of TB treatment, there should have good solidarity between provider and TB client. However, TB patients feel fear for interacting with care-providers so that they don't understand clearly about the treatment course. As a result, they go to more familiar treatments-traditional healers. Sagbakken. M, et al, 2008. reported many patients said that they feared health personal and did not want to ask any question. Moreover, several patients mentioned "unfriendly touching"(31). Edginton. ME, et al, 2002. reported that many persons believe that good outcomes of TB can only be treated by traditional healers (26).

To be curable, self-care is necessary. TB patients themselves are more important than health-care providers. They have to intend to take anti-TB drugs regularly and follow

the full course of treatment. Moreover, they have to take care by themselves such as stop smoking, drinking alcohol during the treatment course. However, many patients think that TB is not curable; so they do not intend to be treated. In addition, some understand that herbs can kill TB germs. Sagbakken. M, et al, 2008. demonstrated that many patients had treated themselves with home remedies such as oil-seed, tea or herb porridge for a long period before approaching a private or public clinic (31). Liefooghe. R, et al, 1995. demonstrated that almost of TB patients expressed the hope that their disease could be cured. But, many of them were not really convinced about the reality of TB. Some of them stated explicitly they were trying to out of treatment and they would stop it if their TB illnesses did not improve quickly from anti-TB drugs (36).

Perception of social support, the cause of TB treatment is six or eight months so, they need some support from family, friends and neighbors, but some family don't accept that, and some TB patients be shy to tell others. Liefooghe. R, et al, 1995. the diagnosis of TB generally cause distress among the member of a patient family. Most families are deeply shocked when diagnosis is disclosed and have serious difficulties in accepting it, and patients fear adverse response of others to the diagnosis, often they ask explicitly that the diagnosis not to be disclosed to relatives and neighbors (36).

Perception of social economic status, the income is reflected to treatment success or curable some TB patients is a main person to make income for family so, they go for Dots

irregularly. Liefooghe. R, et al, 1995. the indirect cost of TB such as loss of income because of inability to work was mentioned by several patients (36).

CHAPTER III

RESEARCH METHODOLOGY

3.1 Population and sample

This study was held on an official site of national TB management in Vientiane. The study was started from April to December 2012. The total number of TB patients who enrolled for treatment were 35 TB relapse was found in 441 pulmonary TB patients.

The sample was purposefully included all of TB-relapsed patients who met the study criteria (below). Additional TB patients who met the criteria for being the control samples (below) were purposefully selected.

Selection Criteria:

Inclusion criteria:

1. Relapse group: TB patients age $\geq$ 13 years and were diagnosed TB relapse by an evidence of positive sputum smear after a full course of treatment (8 months).
2. Non relapse group: TB patients who were completely treated and the same place of relapse group.

Exclusion Criteria:

1. Who could not be followed up until the end of study such as transferred out to other provinces, unsuccessful treatment, psychological problems
2. Who refuse to engage in this study

Sample size

For the relapse group: All TB patients who were diagnosed TB relapse between April to December 2012 will be included in this study.

For the non relapse group: TB patients who had completed TB treatment and more than two time of relapse group (the ratio 1:2)

3.2 Research instrument

Based on the study conceptual framework (see chapter I), the number of factors that were supposed to be associated with TB relapse were as the following (Figure 2).

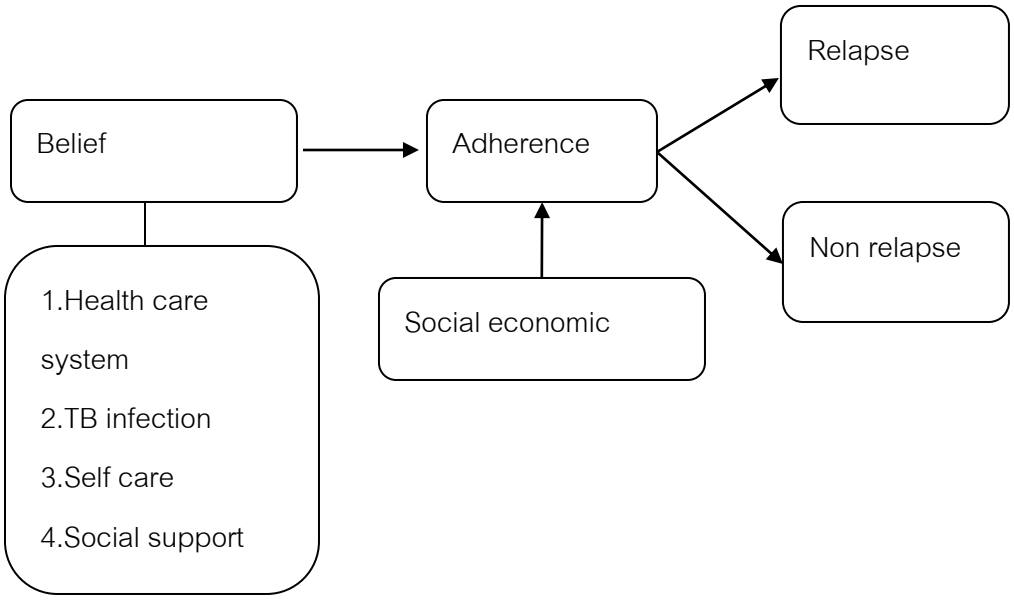

Figure 2: aspects of beliefs regarding TB therapy

Four dimensions were assessed via a questionnaire which was constructed for this study. Each dimension was composed of some components that were evidently associated with the beliefs and the TB relapse. Then, items were generated as simple as possible to avoid confusion. Revisions of all the generated items also discards some items were done in order to make more comprehensible and suitable. The first version of the constructed questionnaire was composed of 108 items:

Table 3.1 the component of belief items

	Subscale	Item Contents
3.1.1 TB disease	threaten/ severity	1. TB can cause fatal. 2. TB is easily infected. 3. TB causes fatigue. 4. TB is like flu. 5. Once TB is treated, it is impossible to be infected gain. 6. TB germs is in the air so it is unlikely to prevent TB 7. A house with limited space brings easily about TB infection
	Benefits of prevention	1. Avoid to stay around a person who coughs can prevent TB 2. A mask is not necessary to prevent TB infection. 3. House sanitation is necessary to prevent TB infection. 4. Smoking aggravates TB symptoms

		5. TB patients should avoid exercise. 6. Alcoholics are not associated with recurrence of TB. 7. Diabetic control is necessary for TB control.
3.1.2 TB treatment	Threaten	1. TB drugs cause unfavorable illness. 2.TB drugs might cause fatal 3. TB drugs are not appropriated with weak patients 4. It is difficult to administer TB drugs. 5. The timing of TB drugs administer is hardly remembered. 6. To have TB drugs change a life. 7. It is cool to have TB drugs. 8. It is hard to follow TB treatments. 9. TB can be cured. 10. TB is a disease that is easily treated. 11. TB is a disease that is easily recurrent. 12. TB drugs should be stopped whenever side effects occur. 13. TB drugs should be continued despite the fact that TB symptoms are absence.

	Benefits	1. TB treatment brings about a lively life back 2. TB treatment leads to be healthy 3. TB treatment can prevent spread of TB. 4. Full-course of TB drugs can get rid TB.

Table 3.2 Dimension of social belief

	Subscale	Item Contents
3.2.1 Social stigma	Threaten	1. It is pity to be a TB patient. 2. TB leads to isolation. 3. TB leads to unfavorable social relationships 4. TB leads to unemployed. 5. TB person is disgusting. 6. It is good for TB patients to have meetings with friends. 7. It is acceptable for TB patients to join social activities as usual. 8. TB patients should live alone. 9. A person who has red urine should be kept apart. 10. To get TB disease is a curse from evils.

		11. TB brings about divorce. 12. TB leads to poor sexual relationship
	Benefits	1. For a good point of view, TB patients are interested by a society 2. TB control becomes in a health policy 3. It is good that TB person are permitted for sick-leave 4. No TB infection in a society is preferred
3.2.2 Family support	Threaten	1. My family kept apart of me since I was infected 2. My TB infection disturbed my family life.
	Benefits	1.My family did not disgust my TB infection 2.My family keeps me patient to TB treatment 3.My family supported me to pass through TB infection 4. My family sheered up my suffering life from TB

Table 3.3 Dimension of cultural – self care

	Subscale	Item Contents
.3.1 Culture	Benefits/ threaten	1. Faith in Buddhism or God helps TB patients. 2. Meditation helps TB cure. 3. Confession helps TB cure.

		4.Traditional therapy is more efficacy than DOTs therapy 5.Herbal treatment is necessary for TB cure
3.3.2 Self-efficacy	Yes	1. Any person can protect himself from TB. 2.I myself play major role in treatment process 3.I am so confident that I can cure my TB 4.I swear for myself that no TB infects in me again 5. I can pass the difficult days of TB treatment 6. It is easy to follow physicians' instructions
	No	1.Physicians play major roles for TB cure 2.Somebody destroy my hope of TB cure 3.I often thought about unsuccessful TB treatment 4.I often thought about stopping anti-TB drug 5. For me, every support is necessary to cure TB.
3.3.3 Risks	Threaten	1.smoking is not good for TB treatment 2.exercise is forbidden for TB patients 3.alcohol is not associated with TB relapse 4. Good food is necessary for TB patients

		5.Being healthy is necessary to prevent TB infection 6. Being healthy brings about no TB relapse

Table 3.4 Dimension of health care system belief

	Subscale	Item Contents
3.4.1 Percept health behavior	Benefit	1.Sleep 8 hours per day can prevent TB relapse 2. Eating high-protein diet is necessary for TB patients 3. Joined TB-activities (by DOTS) can prevent TB relapse 4. Visiting DOTs-clinics regularly is good for TB cure.
3.4.2 Health care seeking	Benefit	1.It is good to seek how to cure TB in any way. 2.I learn more about TB after I have got infection 3. I learn about TB with who had TB cured 4. Many people help me because I seek for TB care 5. It is impossible to treat TB infection without anti-TB drugs. 6. Non-DOTS service help me to fight with TB infection.
	Threaten	Non-DOTS services make me confused about TB cure.

3.4.3 Health personnel	threaten	1. Ignorance of health personnel lead me to be disappointed. 2. I still need some explanation about my TB. 3. I know that Health care providers disgust me. 4. Bad Treating by Health care providers lead me to seek other TB services.
	benefit	1. I feel good relationship between the care providers and me. 2. Health care provider is so respectful that I came to visit regularly. 3. Discussion the progress treatment by health personnel lead to good adherence.
3.4.4 health care unit	threaten	1. Why organization at DOTs clinic is so bad. 2. Dots care services is so far from home. 3. Visiting at the health center is risk for TB relapse. 4. Frequently changed TB management lead to bad outcomes. 5.TB care units were so dirty.
	benefit	1. I believed that DOTs care was a high standard. 2. It is good to see doctors at DOTs care unit. 3. Visiting DOTs care unit, I was sure that I got good

		medications.
3.4.5 Health policy	benefit	1.It is good that Health policy set 'Free for TB drugs'. 2. It is good that Health policy set 'Free for diagnosis' 3. Health policy helps my TB cure. 4. Health policy helps me far from TB relapse.
	threaten	1. Health policy for TB is not good enough. 2. Health policy for TB makes TB patients suffered. 3. It would be better if Health policy for TB expand to cover drugs for TB side effects. 4. Health policy should cover prophylaxis in addition to treatment.

3.3 Qualification of the questionnaire

Content validity was initially and independently performed by three experts in TB, they gave the score for relevance of item content with the aspect/component content (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant). As a result of verifying content validity, some items were excluded; some were adjusted or revised until all

the experts approved for all items. Finally, the 90-item questionnaire was proceeded to the next verification.

Reliability regarding internal consistency (Cronbach's reliability) was then tested. Samples for qualifying this reliability test were the TB relapse in two hospitals in Vientiane since January to March 2012. A number of samples for reliability test were approximately 30 persons (10 in relapse and 20 in non relapse). For qualified indices, the item-total item correlations, item-item correlation coefficients, as well as the alpha of Cronbach were reviewed to guide for further modulations. Finally, the constructed questionnaire was modulated. The final questionnaire remained 23 items with the satisfactory Conbrach values (Table 3.6)

Table 3.6 The final version questionnaire

Number of items	alpha value
23 items	0.89

In summary, the five perceptions had been verified for content validity. After (content) validating, the first adjusted questionnaire was processed into the first internal consistency reliability test. Some items or statements among five perceptions were excluded or adjusted based on the indices as previously mentioned. Then, the second adjusted questionnaire was prepared for the second process of reliability verification. The second result revealed small adjustment needed. Then, exclusions of some items were

done. Consequently, the remaining items could make good alpha values for every scale. Therefore, the 23-item, final-version questionnaire contained qualified five perceptions. At last, this questionnaire was translated into Lao language.

3.4 Data collection

After finished developed questionnaire in Lao language, first, we were consecutively enrolled the eligible participants by searching TB register books in 2012 for relapse and retrospective for non relapse, second, we called to all participants to inform our objectives of study and ask for participant in our study, Then we sent the official letter from National Tuberculosis Center, Ministry of Health for invite them to join our study.

Investigator gave the consent form to the participants and read together after that participant signed the consent form.

Two sputum caps were collect from the non relapse group one before bed and one in the morning in the next day and transferred to the National Tuberculosis Reference Laboratory. If the sputum examination result negative will be included in this study and was appointed for interview.

The interview was conducted at participant's home for the non relapse group and at TB clinic for the relapse. Investigators gave questionnaire to participant and read together, researcher explained if participant didn't understand. The belief score was given by participant and used half to hour for each interview.

3.5 Data analysis

The characteristics of the respondents, two specific ranges of age and gender, status, ethic group, religion, education and work were summarized in each specialty course in aspects of number and percentage, and were used descriptive statistics, crosstab.

All given score on the provide items were analyzed with mean and standard deviation. However the item score of some negative direction statements were converted before getting into future process. Beside, summations of the scores of items that concluded in each scale were proceeding to be the total score were basically described by range, mean together with standard deviation.

For analysis to test the mean difference of belief score to each perception in two groups were used compare mean, independent T Test, a significant level was indicated at p-value <0.05.

CHAPTER IV

RESEARCH RESULT

As stated in chapter I, this study aimed at studying some difference in beliefs regarding TB between patients who had and had no TB relapse and to reveal the beliefs against TB relapse.

During the study period from April to December 2012, the number of TB pulmonary relapse in 9 TB care centers was totally 35 cases. Thirteen patients were excluded with some reasons; five patients were transferred to have further treatment at their near-home centers; seven patients rejected in this study; and a patient died during the treatment course. Finally, twenty-two relapsed patients were included. The ratio of matching with non-relapsed patients was 1:2. (Figure 4.1)

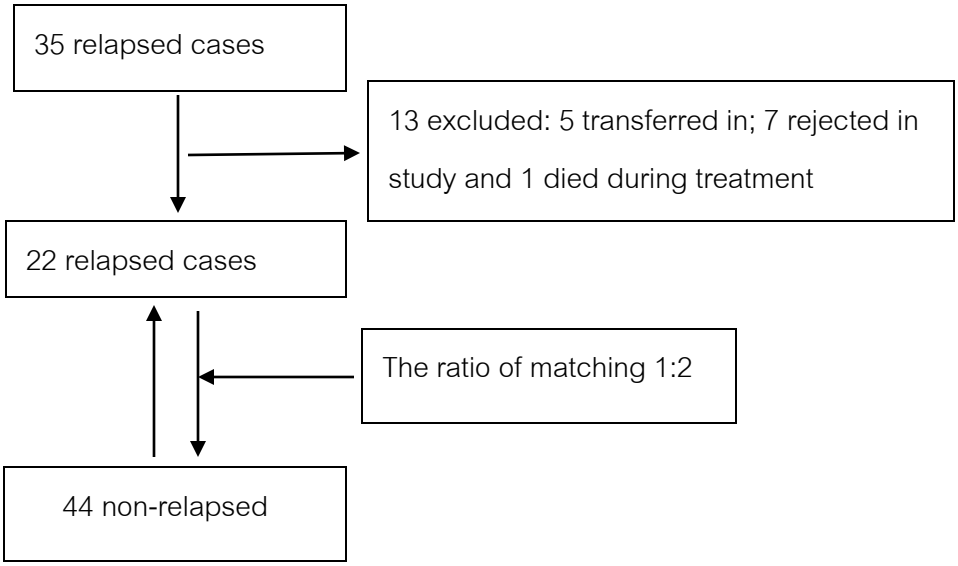

Figure 3 A diagram of the ratio matching between TB relapsed patient and non TB-relapse patient

Characteristics of the two groups were seemed to be similar (Table 4.1). Male gender was predominantly in both groups, which was72.72% and 79.54% in relapsed (‘relapse’) and non-relapsed (‘non relapse’) group respectively.

The single status in relapse was higher than non relapse 31.8% vs 15.9%; most of participants were Lao loum and Buddhism 100% in non relapse and 90.2% in relapse; the education, more than half was no school or primary school in relapse 54.54% but in non relapse 27.28%; the percent of no job, worker or farmer was higher than others in relapse 59%, but in non relapse the other was higher 54.50%.

Table 4.1 Characteristics data of two groups

Variables	Relapse		Non Relapse	
	N	%	N	%
Age group				
13 – 17	0		0	
18 – 30	5	22.72	10	22.73
31 – 50	4	18.18	9	20.46
>50	13	59.1	25	56.82
Gender				
Male	16	72.72	35	79.54
Female	6	27.28	9	20.45
Status				
Single	7	31.80	7	15.90
Married	15	68.18	37	84.09
Ethic group				
Lao	20	90.90	44	100.00
Mong	2	9.00	0	
Kmou	0		0	
Religion				
Budhism	20	90.90	44	100.00
Ghot	2	9.00	0	
Education				
No school or primary	12	54.54	12	27.28
Secondary school/Tertiary	10	45.50	32	72.72
Work				
No Job, worker/Farmer	13	59.00	20	45.50
Others	9	41.00	24	54.50

Regarding the beliefs related to TB relapse, the 25-item questionnaire was constructed and qualified as stated in chapter III. The 1-5 Likert scale was applied for assessment degree of agreement. The possible score range in each participant was supposed to be 25 to 125. The observed score range in the relapse group was 63 to 85; and the mean score was 72.77 (SD = 6.63) (Table 4.2)

Table 4.2 Score in relapse group

TB group	Possible score range	The observed score		
		Range	Mean	SD
Relapse	25 - 125	63 - 85	72.77	6.63

For the non relapse group, the observed score range was 72 to 101, mean score was 90.7 (SD = 6.62) table 4.3

Table 4.3 Score in non relapse group

TB group	Possible score range	The observed score		
		Range	Mean	SD
Non relapse	25 - 125	72 - 101	90.7	6.62

When compared the mean scores between the two groups, there was a statistically significant difference between the two groups. The mean scores were 72.77 and 90.7 in ‘relapse’ and ‘non relapse’ respectively, in which the p-value 0.0001, 95% CI (-21.24;- -14.61) (Table 4.4).

Table 4.4 Compare the total mean score between the two groups.

	'Relapse' (n = 22)	'Non relapse' (n = 44)	Mean difference	p-value	95% CI
Mean score	72.77	90.7	17.93	0.0001	-21.24 ; -14.61

The finding of the face to face questionnaire interview data analysis revealed five themes and were:

- Beliefs/perception of TB disease
- Beliefs/perception of stigma and family support
- Beliefs/perception of self care
- Beliefs/perception of health care system

4.1 Beliefs/perception of TB disease

Firstly, the perception of TB disease contained 5 items. The perceptions of TB disease were a matter of knowledge of TB infection. The findings showed 'non relapse' gave significant higher scores for all the five items if compared with those of 'relapse'. The mean sum of score of the TB disease subscale were 12.54 (SD= 2.59) and 18.06 (SD = 2.27) of 'relapse' and 'non relapse', consecutively, in which the p-value = 0.0001.

Remarkably, non-relapsed patients highly agreed in severity of TB infection in aspect of TB are easily infected and TB causes fatigue. Regarding perception of TB treatment, non-relapsed patients seemed to more realize that TB drugs cause unfavorable illness and TB treatment can prevent spread of TB. However regarding the aggravated

factor of TB relapse, the item that alcoholic was not associated with TB recurrence by relapse patients (Table 4.5).

Table 4.5 The scores of the subscale-perception of TB disease

Perception	Relapse n = 22		Non relapse n = 44		Mean difference	P-value	95% CI
	Mean	SD	Mean	SD			
1 TB disease	12.54	2.59	18.06	2.27	5.52	0.0001	-6.76; -4.27
1. TB is easily infected	2.00	0.96	3.09	0.96	1.09	0.0001	-1.59; -0.58
2. TB causes fatigue	1.59	0.85	2.30	1.13	0.71	0.012	-1.25; -0.57
3. Alcoholics are not associated with recurrence of TB.	2.82	1.22	4.18	0.756	1.36	0.0001	-1.85; 0.87
4. TB drugs cause unfavorable illness	2.77	1.02	4.36	0.65	1.59	0.0001	-2.0; -1.17
5. TB treatment can prevent spread of TB	3.36	0.72	4.14	0.87	0.78	0.001	-1.2; -0.33

4.2 Beliefs/perception of social aspect

Secondly, the perception of social aspect showed a significant difference between ‘relapse’ and ‘non relapse’, in which the mean score were 11.27, (SD = 2.59) in ‘relapse’ and 18.06 (SD = 2.27) of non relapse (p-value = 0.0001). Perceptions of social stigma in aspect of a perception of pity to be a TB patient, a perception of isolation/disgusting, and a perception of poor relationships with the others were remarkably agreed for the non-

relapsed patients (Table 4.6). Notably, a perception of family support was found a similar score in 'relapse' than that of 'non relapse' (p=1.00).

Table 4.6 The scores of the subscale-perception social aspect

Perception	Relapse n = 22		Non relapse n = 44		Mean difference	P-value	95% CI
	Mean	SD	Mean	SD			
2. Social aspect	14.09	3.32	20.43	3.83	6.34	0.0001	-8.25; - 4.42
1. It is pity to be a TB patient	1.86	1.03	3.05	1.07	1.19	0.0001	-1.73; -0.62
2. TB leads to isolation	1.86	0.83	3.32	1.00	1.46	0.0001	-1.95; -0.95
3. TB leads to unfavorable social relationships	2.00	0.75	3.16	1.11	1.16	0.0001	-1.88; -0.63
4. TB person is disgusting	1.91	0.68	3.14	0.97	1.23	0.0001	-1.69; -0.72
5. My TB infection disturbed my family life	2.05	1.13	3.07	1.22	1.02	0.002	-1.64; -0.39
6. My family sheered up my suffering life from TB	4.41	0.50	4.70	0.46	0.29	0.46	-0.54; - 0.047

4.3 Beliefs/perception of self care

The self care were also effect to belief between two groups, p-value .0001 95% CI (-6.11; -3.51), and the mean score was 22.86 (SD = 3.39) in relapse group and 27.68 (SD = 1.9) in non relapse group. There were seven questions, two about belief in the culture, such as TB person will be cured by faith in Buddhism or God and confession is important to

improve their health when they got TB; three questions about the self care, first, I swear for myself that no TB infects in me again, second, I often though about unsuccessful TB treatment, and I often though about stopping anti-TB drugs. And two questions about the risk to get TB such as, smoking is not good for TB treatment and visiting DOTs clinic regularly is good for TB cured. Table 4.7

Table 4.7 The scores of the subscale-perception of self care

Perception	Relapse n = 22		Non relapse n = 44		Mean difference	P-value	95% CI
	Mean	SD	Mean	SD			
3. Self care	21.50	4.32	29.22	2.68	7.72	0.0001	-9.45; - 5.98
1. Faith in Buddhism or God helps TB patients.	3.23	1.15	4.05	1.86	0.82	0.002	-1.32; -0.34
2. Confession helps TB cure	2.73	0.98	3.75	0.83	1.02	0.0001	-1.48; -0.55
3. I swear for myself that no TB infects in me again	2.32	0.83	3.77	0.83	1.45	0.0001	-1.89; -1.02
4. I often thought about unsuccessful TB treatment	2.55	1.01	4.2	0.63	1.65	0.0001	-2.06; -1.25
5. I often thought about stopping anti-TB drug	3.36	1.13	4.34	0.56	0.98	0.0001	-1.39; -0.56
6. Smoking is not good for TB treatment	4.18	0.95	4.68	0.63	0.5	0.01	-0.89; -0.10
7. Visiting DOTs-clinics regularly is good for TB cure	3.14	0.64	4.43	0.54	1.29	0.0001	-1.59; -0.99

4.4 Beliefs/perception of health care system

The health care system was also statistic significantly different in two groups, the p-value 0.0001, 95% CI (-2.67; -1.28) and the mean score was 19.72 (SD = 1.69) and 21.70 (SD = 1.11) in relapse and non relapse respectively. But for the two questions about health policy, It is good that health policy set 'free for TB drugs' and It is good that health policy set ' free for diagnosis', the answer were similar in two groups, the statistic were not significant. Table 4.8

Table 4.8 perception of health care system

Perception	Relapse n = 22		Non relapse n = 44		Mean difference	P-value	95% CI
	Mean	SD	Mean	SD			
4 Health care system	19.72	1.69	21.70	1.11	1.98	0.0001	-2.67; - 1.28
1. Many people help me because I seek for TB care	3.64	1.0	4.18	0.54	0.54	0.005	-0.92; -0.16
2. DOTs services make me confused about TB reatment	3.41	0.73	4.11	0.32	0.7	0.0001	-0.96; -0.44
3. Why organization at DOTs clinic is so bad.	3.18	0.79	3.82	0.54	0.64	0.0001	-0.96; -0.30
4. It is good that Health policy set 'Free for TB drugs'	4.77	0.42	4.73	0.45	0.04	0.69	-0.186; -0.27
5. It is good that Health policy set 'Free for diagnosis'	4.73	0.45	4.86	0.34	0.13	0.181	-0.33; -0.06

CHAPTER V

DISCUSSION

As known, TB relapses after treatment is an important problem of infection control. Based on medical theories, TB relapse was associated with TB treatment regiment (7), the underlying diseases such as diabetes, risk habits, such as cigarette smoking (11) and poor adherence to TB therapy (3,12). Of note, the risk habits and the adherence to treatment are subjected to be personal decision-making.(13) Based on health belief theory, decision makings regarding health behaviors are depending on benefits or threats, which is a kind of beliefs (37). Therefore, it might say that personal beliefs are some extent associated with TB relapse.

In the past, there have been many studies about the beliefs regarding TB infection but in separate dimensions. Therefore, this study collected past-reported dimensions of beliefs that were related to poor TB adherence and TB relapse. Five dimensions were demonstrated some relevance, which were perceptions of TB infection, social aspects, self-care, health care system and socioeconomic status.

There was a remarkable result that all of the beliefs or perceptions showed statistically significant difference between the relapsed patients and non-relapse patients. That mean the beliefs really are significant factors that lead to favorable behaviors against TB relapse. As a result, implementation regarding favorable TB-related beliefs might be helpful to reduce an incidence of TB relapse.

This study revealed some TB-related beliefs that had to be discussed as the following;

5.1 Beliefs/perception of TB disease

Based on the study results, there was a significant higher degree of agreement in TB- infection beliefs. Remarkably, the knowledge regarding medical-related TB infection seemed to be less in both groups. As seen, the given scores were rather low scores for the two items- TB is easily infected and TB causes fatigue-. However, the non-relapsed patients seemed to perceive that TB infection was more severity than that of the relapsed patient. As a result, this point would be applied that the severity of TB infection should be implemented.

For the risk of TB recurrence or relapse, the mean score was difference of item: alcoholics are associated with recurrence of TB, non relapse patients seemed to agree with alcohol can cause TB recurrence.

On the contrary, TB patients seemed to well perceive in case of the effects of TB treatment. It could easily explain that they could directly learn the unfavorable experience of treatment by themselves. However, the relapsed patients seemed to less likely concern than the non-relapsed patients. Strikingly, the given scores for the item -TB drugs cause unfavorable illness- by the relapsed patients were rather lower scores. In which, the more perception of 'TB drugs cause unfavorable illness' should lead to poor adherence. This conversed finding might possibly imply that the TB-relapsed patients might not adhere to TB treatments. However, this postulate needed to be further investigated.

Focusing on-TB treatment can prevent spread of TB-, the finding showed that the non TB-relapsed patients perceived significant agreements. It was possible that the non TB-relapsed patients were subjected to more concern about social health than that of the TB-relapsed patients. This difference of view might come from different personality or the

embedded values. If so, it needs to embed the values of social responsibility for implementation.

5.2 Beliefs/perception of Social aspect

The findings showed that the non TB-relapsed patients perceived more significant social interactions. The social interaction was in the other word-social stigma. As such, the non TB-relapsed patients gave the high score of agreement on the items- It is pity to be a TB patient, TB leads to isolation, TB leads to unfavorable social relationships, and TB person is disgusting-. These study results leaded us surprised because the past studies claimed that social stigma brought about poor adherence to TB drugs (38). This point could lead to two postulates. Firstly, is it possible that some TB patients who perceive some social stigma as positive incentives? Secondly, is it possible that some TB patients who perceive some social stigma are the persons who are highly embedded social responsibility values? In addition, the responded behaviors toward social stigma might be complicated more than our previous ideas that social stigma causes social ignorance or anti-social behaviors. Therefore, these postulates needed to be further investigated in the future.

The social aspect regarding family support seemed to be important for both the TB-relapsed and non TB-relapsed patients. But, the non TB-relapsed patients much more perceived that their TB illnesses disturbed their families. Again, it was possible that these patients might have much more concern for social responsibility so that they made their decision to cure their illnesses.

5.3 Beliefs/perception of self care

The findings illustrated that having self care was significant for against TB relapse. TB patients who could fight for TB infection must have seeking-care or medical taking behaviors. As seen in past studies, Morisky. D.E et al, reported that participant who score high in self-efficacy with medication taking behavior were significantly more likely than those who reported lower self-efficacy to have higher levels of medication taking behavior at post test ($R = 0.254$, $p < 0.0001$) (39)

Additionally, self-confidence behavior showed its association with non relapse. Patients who have self-confidence are those who have self-efficacy, Lenz. E.R and Shortridge-Baggett. L.M, 2002, efficacy expectation refer to person's belief or confidence that he or she is or perceives that he or she is capable of performing the required behavior(40). Regarding self-efficacy, it means that one feels easy to do such a hard thing. Maibach. E and Murphy. D.A, 1995, an expression of personal efficacy is an assertion of confidence in one's capacity to manage the difficulties inherent in a specified level of behavior change (41) and Lenz. E.R and Shortridge-Baggett. L.M, 2002, assert that while people who have faced with difficulties than those with lover level, they also suffer from other negative factors such as stress and anxiety (40). Self-efficacy is associated with health behaviors such as adherence to treatment, Chani. K, 2010, self efficacy influences the possibility of an individual patient being motivate to comply with treatment (42). Also, the results showed that enhancement self-efficacy could reduce an incidence of incomplete TB treatment.

Moreover, the cultural factors-faith in religion seemed to be significant for being appropriate self-care. For example, relapse patients seemed to beliefs, faith in Buddhism or God and confession help TB cured, for this point may cause non adherence, therefore, it would be study in the future.

5.4 Beliefs/perception of Health care system

Based on the results of this study, it confirmed that those who were 'relapse' significantly perceived that they got less assistance while they were seeking health care. This might be one of the reasons for non-adherence to TB treatment, Chani. K, 2010, Health care attitudes, such as being unfriendly to patients, tend to deter patients from seeking treatment or coming to collect medicines once they are finished (42). This point-of-view that was disclosure might be associated with arrangement for TB care by DOTs. On the contrary, patients who were 'non relapse' perceived more satisfaction. However with surprise, they perceived that the organization or services were not good. This finding again demonstrated some DOTs' care managements that were actually existed. Corresponding to the finding of 'making more confusion', it was possible to be come from inadequate of time, reinforce of their required or unable to understand given information, in past study, Bam. T.S et al, inconvenient opening times for TB clinics situated far from patients" homes accounted for defaulting in 28% of non-compliant TB patients (43), Peltzer. K et al, established that the quality of healthcare provider and patient communication, coupled with correct causative belief, were associated with TB treatment compliance (44).

Regarding the free-of-charge care provided by Dots, both ‘relapse’ and ‘non relapse’ strongly agreed that they were happy to get them. These might be most of TB patients had financial problems. Some other free-of-charge cares should be considered for possible more adherences to TB treatment.

Base on the result, the facilitating to TB treatment of non TB relapse, there were belief of the TB infection, social support and self care. For the barrier to TB treatment, there was the belief of health care system. Table 5.1

Table 5.1 The factors of against and facilitate to TB treatment

Facilitate	Barrier
Beliefs of TB infection	Beliefs of health care system
Beliefs of social support	
Beliefs of self care	

5.6 Limitation of the research

There were some limitations of this study:

- The first, the research study would conducted in case control study, however the control group was smaller, as result, it was used a descriptive study.
- The participants between two groups were matched only by age less or more than five years
- The TB relapse group was interviewed during first to three months of treatment, in this period, they were taken Steptomycin injection, the TB symptoms were still appear and they felt fatique, so their emotion not good, it may effect to less perceived of the questionnaire than no relapse group.

5.7 Recommendation

- A report of the research finding will be presented to National Tuberculosis Control Programme managements
- These findings may will be the data base for health promotion and community health strategies to prevent non adherence TB patient, TB relapse and MDR-TB
- The physician may use this questionnaire and some risk factors to identify early relapse case
- Future research should be cohort study by used this questionnaire to investigate and follow up new TB patients who was completed treatment and use qualitative study to identify the significant items.

5.8 Conclusions

The four factors such as: belief/perception of TB disease, social aspect self care and health care system were significant in this study.

Relapse TB patient beliefs TB is easily infection and cause fatigue, and TB drugs can cause unfavorable illness. They perceived to be a TB patient is pity, TB patient leads to isolation and unfavorable social relationships and they also believed their TB infection disturbed their family life. For the culture, some relapse beliefs the TB patient was cured by faith in Buddhism or God. The self care, relapse groups often thought about unsuccessful their TB treatment and stopping anti-TB drugs. For the health care system, relapse group perceived DOTS service or TB clinic make their confused about TB treatment.

Although, this study has some limited so, the next study should be conducted the cohort and qualitative to study about the items that mentioned above.

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Appendices

Appendix A

Case record form

Case record form

Inclusion Criteria:

1. New P TB patients : Yes ☐ No ☐
2. Age (year) > 13: Yes ☐ No ☐
3. Treatment regimen 2ERZH/6EH: Yes ☐ No ☐
4. Successful treatment (Cured or completed): Yes ☐ No ☐

TB initial treatment Data:

Registration TB Number: _ _ _ / _ _ _ _

Date start treatment: _ _/ _ _ / _ _ _ _ ; Date end of treatment: _ _/ _ _ / _ _ _ _

Sputum examination

Sputum number __ __ __ Date _ _/ _ _ / _ _ _ _

Result					
Sputum cub	negative	1-9	1+	2+	3+
1					
2					

Appendix B

Questionnaire

LAO PEOPLE'S DEMOCRATIC REPUBLIC

PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

Ministry Of Health

National Tuberculosis Center

Questionnaire

Project topic: Beliefs against TB relapse under DOTS program in Vientiane, Loa PDR

Your participation is voluntary and your answers will not be released to anyone and don't give the name on questionnaire.

This questionnaire, we wish to learn about your knowledge, attitudes and practices regarding tuberculosis. We hope to understand your behaviors to prevent developing TB disease. The information that you provide will be used to improve tuberculosis control in our country.

I. Initial Interview face sheet

Participant Study ID Number __ __ - __ __ - __ __ __

Date of interview: ____/_____/____

Start time: _____ Finish time: _____

Place of interview: Clinic _____; Pt's Home _____; Other specify:_____

Interviewer's Name: _____

SITE QA

Reviewed by: _____

Date of review: _____/_____/_____

Date of data entry: ____/____/_____

Data entered by: _____

II. Interview section

Thank you very much for agreeing to take part in this study. I am going to ask you some questions about yourself and about tuberculosis. Your answers will help us provide better care for people like yourself.

These questions will take about an hour to answer. If you don't understand a question, please tell me. If you don't know the answer to a question, tell me and we will go on to the next one. If you don't want to answer a question, we will skip it. Is it OK to begin now?

Section A. Demographics and social-economic

A1. How old are you? _____(age)

A2. And your sex is…?	1. Male	☐	2	Female	☐
A3. Are you married?	1. Yes	☐	2	No	☐

A4. What is your ethnicity? 1. Lao lum ☐; 2. Mong ☐; 3. Kmou ☐

A5. What is the highest level of schooling you have completed so far?

1 No school ☐ 2. Primary school ☐;

3 Secondary school ☐ 4 Upper secondary school ☐

5 College/university ☐ 6 Postgraduate ☐

7 Other Specify: _____

A6. What do you work?

1 Retired ☐ 2 Unemployed ☐ 3 Student ☐

4 House work ☐ 5 Farmer ☐ 6 Worker ☐

7 Civil servant ☐

B. content of beliefs

	Variables	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
1	TB is easily infected					
2	TB causes fatigue					
3	Alcoholics are not associated with recurrence of TB.					
4	TB drugs cause unfavorable illness.					
5	TB treatment can prevent spread of TB					
6	It is pity to be a TB patient					
7	TB leads to isolation					
8	TB leads to unfavorable social relationships					

9	TB person is disgusting					
10	My TB infection disturbed my family life					
11	My family sheered up my suffering life from TB					
12	Faith in Buddhism or God helps TB patients.					
13	Confession helps TB cure					
14	I swear for myself that no TB infects in me again					
15	I often thought about unsuccessful TB treatment					
16	I often thought about stopping anti-TB drug					
17	smoking is not good for TB treatment					
18	Visiting DOTs-clinics regularly is good for TB cure.					
19	Many people help me because I seek for TB care					
20	DOTs services make me confused about TB treatment					
21	Why organization at DOTs clinic is so bad.					
22	It is good that Health policy set 'Free for TB drugs'					
23	It is good that Health policy set 'Free for diagnosis'					
24	Poverty leads to TB infection					
25	I believed that the poor get more advantage of Tb care than the rich					

Thank you very much for participating in this interview. We very much appreciate your help in improving TB programs in the Laos. I want to assure you again that the information you provided me is confidential and will not be shared outside the study. If you have any questions about anything we talked about, please feel free to contact _____at the local clinic. The telephone number is (_____).

Thank you again for taking the time to participate in this study.

Appendix C

Consent form

LAO PEOPLE'S DEMOCRATIC REPUBLIC

PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY

Ministry Of Health

National Tuberculosis Center

Consent Form

National Tuberculosis center has conducted research of beliefs against TB relapse under DOTS program in Vientiane, Loa PDR

Objective: To evaluate some difference in beliefs regarding TB between patients who had and had not recurrent TB, and reveal the beliefs against TB relapse.

This research, we wish to study about your beliefs/perception of TB disease and treatment, we would like to interview you directly and need the time about an hour.

You are volunteered for participant in this study, and for free during study. In addition, you can cancel to participant from this study any time.

To protect your privacy, no individual information, including genetic data would be informed.

I understand and interest in this study, so I agree to participant in this study.

Vientiane Capital……

Signature: ……

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