

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

This research was a cross-sectional descriptive and analytical study

3.2 Research Methodology

3.2.1 Population study

The population in this study consisted of one hundred newly registered smear-positive pulmonary TB cases at Thung Song Hospital, from 10 February 2003 to 30 September 2003.

3.2.2 The sample size for this research was based on descriptive research into the outcomes of TB treatment and related factors for one population group, so the sample group comprised only newly TB-infected patients.

The equation used to calculate the sample size follows:

$$n = \frac{Z^2 pq}{d^2}$$

Cure rate = 0.67

q = 1 - 0.67 = 0.33

The Z value when α is 0.05 = 1.96

d = the standard error for possible cures = 0.01

$$n = \frac{1.96^2 \times 0.67 \times 0.33}{(0.01)^2} = 85 \text{ samples}$$

In fact, 100 new TB cases were used in this study, more than the calculated sample size requirement. This helped to strengthen study results.

3.2.3 Data-Collection Period

April 2004-June 2004

3.2.4 Observations and Measurements

3.2.4.1 Variables

3.2.4.1.1 The independent variables consisted of the socio-demographic and economic details of each individual, including age, gender, marital status, family status, education, income, income sufficiency, health insurance, distance and expense of coming for medical services, healthcare service convenience, signs of stigma from family members and community members, knowledge, attitudes and patients' practices for TB treatment; interrelationship between healthcare staff and patients, patient satisfaction, and the symptoms and severity of TB at the first stage of diagnosis.

3.2.4.1.2 The dependent variables were based on the outcomes of TB treatment, which consisted of 6 categories: cure, complete medical treatment, treatment failure, treatment default, died during treatment, and transferred out.

3.3 Research Instrument

The instrument used in this study was composed of a set of interview questions designed by the researcher to interview the subjects. The questions were divided into 5 parts, totaling 74 items.

3.3.1 The interview questionnaire

3.3.1.1 Part I: 19 questions were used to ask the patients for their general information.

3.3.1.2 Part II: 30 questions were used to test the patients' knowledge of TB treatments, and their attitudes and practices towards TB treatment. The questions were divided into 3 categories:

- 10 items for the knowledge test
- 10 more items for the attitude test, consisting of 5 positive attitudes (items 3, 5, 7, 8, and 9) and another 5 items for negative attitudes (items 1, 2, 4, 6, and 10)
- 6 items for the positive behavior test (items 1, 2, 5, 7, 9, and 10) and another 4 items for the negative behavior test (items 3, 4, 6, and 8)

3.3.1.3 Part III: 16 closed questions were used to check the interrelationships between the healthcare staff and the TB patients.

3.3.1.4 Part IV: 1 open question asking about the patients' problems and their suggestions.

3.3.1.5 Part V: 8 items for questions from the TB clinic records.

3.3.2 Instrument Validity and Reliability

Content validity was checked by interviewing four experts to check the accuracy and clarity of the questions, to consider the appropriateness of the questions for every aspect of their content, and to improve or modify the content based on the experts' recommendations. After that, the improved questions were tried out with TB patients in Ronpibun District, Nakhon Si Thammarat Province (not part of the main study). Tests of the patients' knowledge were conducted to determine the accuracy by means of KR 20 (Ruder Richardson). The mean for accuracy was 0.72, while the tests of patient attitudes, healthcare staff interrelationships, and patient satisfaction were calculated by Cronbach's alpha coefficient, resulting in an accuracy value of 0.82.

3.4 Data Collection

Preparation stages

1. Prepare manual guideline
2. Submit letter to the Head of the District Public Health Office and the Director of Thung Song Hospital seeking permission to conduct the study of TB patients under their responsibility.
3. Co-operate with the related offices, such as the TB clinic at Thung Song Hospital and the public health centers, who were responsible for TB patients, so that it would be easier and more convenient to collect the data and follow-up the TB cases.
4. Select 5 research assistants to represent the 5 main primary care units (PCUs) in Thung Song District, Nakhon Si Thammarat.

5. Meet with the research assistants to ensure clear understanding of the research methodology. and the accuracy and validity of the questions.

Operational Stages

1. Collect TB data by co-operating with TB clinics to gather recorded TB treatment services and to make appointments with the new TB patients who were registered from 1 February to 30 September 2003, so that they would be interviewed by well-trained research assistants.
2. Make an appointment with 10 patients a day for an interview
3. The TB patients who had missed their appointments were followed up and visited by the researcher and the research assistants from each PCU. This follow-up was integrated into the proactive treatment strategies in each responsible area.

3.5 Data Analysis

The data were analyzed by a commercially available descriptive and inferential statistics software package (SPSS), as follows:

3.5.1 Descriptive Statistics

Descriptive statistics dealt with general information concerning the characteristics of the population samples, i.e., gender, age, marital status, family status education, number of family members, occupation, average family income, income sufficiency and expense, health insurance, residential area, convenience and the expense of coming for medical services, service methods, illness information, and

stigma of the family and community. These qualitative data were then calculated to determine frequency and percentage, while the quantitative data were calculated to determine average and standard deviation. Then the data were presented in a tabular form.

3.5.1.2 Information concerning knowledge, attitudes, and behaviors related to TB and its treatment was collected using 10 closed questions to test the patients' knowledge of tuberculosis and its treatment, and the patients' practices during treatment. The criteria were as follows:

Correct answer	=	1 mark
False answer	=	0 mark
Could not answer	=	0 mark

Patient knowledge scores ranged from 0-10.

The levels of the patients' knowledge were divided into 3 stages as follows:

Score		Knowledge level
< 50%	=	Low
50-75%	=	Medium
> 75%	=	High

The analysis was carried out by considering content and level of knowledge for each item; it was then calculated to determine frequency and percentage, and later presented in tabular form.

There were 10 closed-question items to check the patients' attitudes toward TB treatment, using Likert measuring scales.

The questions ranged from 1-5 scales:

Positive Attitudes

Score	Level of Satisfaction
5	strongly agree
4	agree
3	unsure
2	disagree
1	strongly disagree

Negative Attitudes

Score	Level of Satisfaction
5	strongly agree
4	agree
3	unsure
2	disagree
1	strongly disagree

The score ranges were based on Boontham's measuring scales.

Score levels		Attitude Levels
< 35	Score (<70%)	negative
36-40.0	Score (70.1-80%)	neutral
41.0-50.0	Score (>80%)	positive

The analysis was conducted based on the perceptions and levels of perception of the patients towards TB treatment. There were then calculated to determine frequency and percentage, and presented in tabular form.

This study also collected data via interviewing the patients about their practices during TB treatment. The scoring criteria were as follows:

Positive Practices

Did it regularly	3	scores
Did it occasionally	2	scores
Never did it	1	score

Negative Practices

Did it regularly	1	score
Did it occasionally	2	scores
Never did it	3	scores

The scoring scale for the practice levels was as follows:

Average Score	%	Practice Level
<15.0	(< 50%)	Poor
15.1-22.5	(50-75%)	Moderate
22.6-30.0	(> 75%)	Good

The analysis was based on considering the patients' practices, and the practice levels for each item were calculated to determine frequency and percentage, and presented in tabular form.

3.5.1.3 There were 16 questions concerning information about clinic services and interaction of healthcare staff.

The scoring criteria were as follows:

1 score	=	Poor interrelationship
2 scores	=	Moderate Interrelationship
3 scores	=	Good interrelationship

The maximum possible score was 40.

The ratings for the scores for interrelationship level of healthcare staff were as follows:

Scores		Interrelationship
< 24.0	=	Poor
24.0-36.0	=	Moderate
36.1-48.0	=	Good

The analysis was carried out by considering the interrelationship of each item and level of interrelationship. It was then calculated to determine frequency and percentage, and presented in tabular form.

Patient satisfaction was rated on the following basis:

Score		Satisfaction Level
1	=	Low
2	=	Medium
3	=	High

The ratings for the average scores for level of satisfaction were as follows:

Score		Satisfaction Level
< 24.0	=	Low
24.0-36.0	=	Medium
36.1-48.0	=	High

3.5.1.4 Part 4: Problems and Recommendations.

This part consisted of 1 closed-question items.

3.5.1.5 Part 5: TB Treatment Records.

This part consisted of 8 closed-question items.

3.5.1 Inferential Statistics

3.5.2.1 The Chi-square Test and Fisher's Exact Test were used to determine the relation between outcome of treatment and the categorical (non-continuous) population factors, i.e. gender, marital status, family status, education, occupation, income sufficiency and expense, health insurance, domicile, illness information, residential area during sickness, and signs of stigma from family and community.

3.5.2.2 The Mann Whitney U-test was used to determine, for continuous independent variables, the differences between age, income, family members, average family income, knowledge, attitudes, healthcare staff practices and interrelationship, and patient satisfaction factors. This test was used because application of the Kolmogorov-Smirnov

test revealed that most of these variables were non-normally distributed. For such variables the Mann Whitney test (a non-parametric test) is more appropriate than the independent-samples t-test (a parametric test).