

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This descriptive research design aimed to describe the levels of role perception and role performance of FM-DOT observers as perceived by FM-DOT observers and people with PTB, to examine the relationships between role perception and role performance of FM-DOT observers as perceived by FM-DOT observers, and to examine the differences of FM-DOT observers' role performance as perceived by FM-DOT observers and people with PTB.

Population and Sample

The target population for this study was people with PTB from six hospitals in the lower southern part of Thailand and the FM-DOT observers who had been assigned to provide care for them.

The number of people with PTB and FM-DOT observers used in this study was estimated by using power analysis. In a quantitative study comparing differences between groups, power analysis requires 3 values: power ($1-\beta$), the level of significance (α), and the effect size (γ). A power of .80, significance level of .50, and medium effect size of .50 were used in this study because they are conventional standards and accepted in nursing research (Polit & Hunger, 1999).

As a result, the estimated sample size for testing the difference between the two groups in this study using independent t- test was at least 63 FM-DOT observers and 63 people with PTB

The subjects were selected by purposive sampling. The inclusion criteria for each sample group were:

People with PTB:

1. Newly diagnosed with pulmonary tuberculosis and having received treatment medication from 2 to 4 months
2. Receiving treatment medication under DOT by a FM-DOT observer
3. 15 years old or older
4. Well oriented and able to communicate
5. Willing to participate in the study

Family member-DOT observers :

1. Having been assigned to be DOT observers for 2 to 4 months
2. Recorded as DOT observers in the TB treatment cards or DOT cards of people with PTB
3. Well oriented and able to communicate
4. Willing to participate in the study

Setting

The data collection was conducted both in hospital and residential settings. The hospital settings were outpatient TB clinics in six hospitals: one regional hospital, one general hospital, and four community hospitals in the lower southern part of Thailand. The residential settings were the homes of people with PTB.

Instruments

Two forms of questionnaire, Form1 and Form2 were used in this study.

Form 1 was used for data collection from FM-DOT observers. The instrument consists of 3 parts: (See Appendix C)

1. Demographic Data Form
2. Role Perception of FM-DOT Observer Questionnaire (RPC-FMQ)
3. Role Performance of FM-DOT Observer Questionnaire (RPF-FMQ)

Form 2 was used for data collection from people with PTB. The instrument consists of 3 parts: (See Appendix D)

1. Demographic Data Form
2. Role Perception of FM-DOT Observer Questionnaire (RPC-FMQ) as

Perceived by People with PTB

3. Role Performance of FM-DOT Observer Questionnaire (RPF-FMQ) as
Perceived by People with PTB

Form 1: Questionnaire for FM-DOT observers

Part 1: Demographic Data Form

Demographic data of FM-DOT observer includes gender, age, marital status, religion, educational background, occupation, average family income, number of family members, relationship with the person with PTB, duration of caregiving, presence of underlying disease, and FM-DOT observer's experience in caring for people with PTB.

Part 2: Role Perception of FM-DOT Observer Questionnaire (RPC-FMQ)

RPC-FMQ was developed by the researcher based on the practice guideline for DOT observer roles proposed by the Tuberculosis Division, Thailand in 1998. The RPC-FMQ is composed of 20 items within four dimensions: treatment regimen support (8 items), psychosocial support (5 items), financial support (4 items), and case finding (3 items). Each item was scored based on a 4-point Likert's scale. There were 17 positive items and 3 negative items (items № 5,7, and 13). The scoring of the positive items was: 1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, and 4 = strongly agree. The scores of negative items were reversed before analysis. The possible total score ranged from 20 to 80. The total and subtotal of the role perception score were divided into 3 levels: low, moderate, and high. The levels of role perception were categorized by using \bar{X} and S.D. as follows:

High level = $> \bar{X} + S.D.$

Moderate level = $\bar{X} \pm S.D.$

Low level = $< \bar{X} - S.D.$

Part 3: Role Performance of FM-DOT Observer Questionnaire

(RPF-FMQ)

RPF-FMQ was developed by the researcher based on the literature review and the practice guideline for DOT observer roles proposed by the Tuberculosis Division, Thailand in 1998. Some items of the measure were modified from the roles of family members in caring for tuberculosis patients questionnaire developed by Tiptus (2000). The RPF-FMQ is composed of 42 items within four dimensions: treatment regimen support (19 items), psychosocial support (14 items), financial support (6 items), and case finding (3 items). Each item was scored based on a 5-point Likert's scale. There were 36 positive items and 7 negative items (items № 16,17, 20, 27, 30, and 31). The scoring of the positive items was: 0 = not applicable, 1 = never practice, 2 = sometimes practice, 3 = often practice, and 4 = always practice. The scores of negative items were reversed. Any item scores, which were responded to as "not applicable" were deleted from the total score (168). Then, the actual scores were calculated to show the percentage of total and subtotal role performance scores. The percentage of total and subtotal role performance scores were classified into 5 levels: poor, fair, moderate, good, and excellent as follows (Pitiyanuwat & Jantarasonti, 1991 cited in Tiptus, 2000).

90-100%	was excellent
80-89%	was good
70-79%	was moderate
60-69%	was fair
less than 59%	was poor

Form 2: Questionnaire for people with PTB

Part 1: Demographic Data Form

Demographic data of people with PTB includes gender, age, marital status, religion, educational background, occupation, and duration of being diagnosed with tuberculosis.

Part 2: Role Perception of FM-DOT Observer Questionnaire (RPC-FMQ) Perceived by People with PTB

This questionnaire was designed to assess the perceptions of people with PTB regarding the role of FM-DOT observers. RPC-FMQ perceived by people with PTB is composed of 20 items within four dimensions: treatment regimen support (8 items), psychosocial support (5 items), financial support (4 items), and case finding (3 items). Each item was scored based on a 4-point Likert's scale. There are 17 positive items and 3 negative items (items № 5, 7, and 13). The scoring of the positive items was: 1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, and 4 = strongly agree. The scores of negative items were reversed. The interpretation of the perception level of people with PTB was the same as for questionnaire for the FM-DOT observers previously described.

Part 3: Role Performance of FM-DOT Observers Questionnaire (RPF-FMQ) Perceived by People with PTB

This questionnaire was designed to assess the perceptions of people with PTB regarding the role performance that FM-DOT observers had done for them. There were 36 positive items and 6 negative items (items № 16, 17, 20, 27, 30, and 31). The scoring of the positive items used a 5-point Likert's scales: 0 = not applicable, 1 = never

practice, 2 = sometimes practice, 3 = often practice, and 4 = always practice. The scores of negative items were reversed. The interpretation of perception level of people with PTB was the same structure as part 3 in the questionnaire for the FM-DOT observers as previously described.

Test of Validity and Reliability

Validity

The content validity of the instruments were verified by a panel of three people expert in areas related to caring for pulmonary tuberculosis patients. They were a physician in the Zonal Tuberculosis Centre 12, Yala Province, a nurse instructor who was expert in the area of infectious control, and a health care personnel who has working experience in DOTS strategy (See Appendix A). The instruments were revised according to suggestions from the experts.

Reliability

The interrater reliability of the instruments was tested using a convenience group of five people with PTB and their FM-DOT observers, who were similar to the study population. The measurements on each subject were taken by the researcher and two research assistants at the same time and using the same instrument. This process was also used to train the research assistants for further data collection procedures. Interrater reliability was calculated using percentage of agreement between researcher and two research assistants. The percent agreement of role perception questionnaire was 98%

whereas the percent agreement of role performance questionnaire was 95%, indicating a high degree of interrater reliability.

Protection of Human Rights

The human rights of the subjects were respected in this study.

1. The research proposal was submitted for ethical approval by the Ethics Committee, Faculty of Nursing, Prince of Songkla University.
2. Permission was obtained for data collection from the directors, heads of nursing service departments, and head nurses of the outpatient departments of the six hospitals.
3. The researcher or research assistants were introduced to the potential participants by the nurses or health care personnel at the outpatient TB clinics.
4. The potential participants were checked to ensure they met the inclusion criteria before being told the purposes of the study, given assurance of confidentiality, and the right to participate or withdraw from the study at anytime without any disadvantages.
5. Verbalization of their willingness to participate in the study was obtained and then each subject signed the consent form.

Data Collection

Data were collected from both the people with PTB and their FM-DOT observers by the researcher and two research assistants at the outpatient TB clinics of six hospitals or at patients' homes during the period July to October 2003. The procedures for data collection were:

Preparation Phase

1. Permission for data collection was obtained from the directors, heads of nursing service departments, and head nurses of the outpatient departments of the six hospitals.
2. Two registered nurses who could communicate well in both Thai and local Malayu were invited to be the research assistants.
3. Training and supervising of the research assistants were conducted as follows:
 - 3.1 The researcher explained the data collection protocols to the two research assistants including the criteria of the target population, consent forms, the objectives of the study, and all the items in the questionnaires.
 - 3.2 The researcher demonstrated interviewing techniques to the research assistants including administering the questionnaires, avoiding leading questions, and establishing rapport between the interviewer and subjects. Interrater reliability was tested for RPC-FMQ and RPF-FMQ.
 - 3.3 The researcher trained the research assistants in rating the item response of subjects. The researcher and the two research assistants rated the item response of the

same subject to each item of the RPF-FMQ and RPC-FMQ at the same time. Five subjects were rated case by case.

3.4 The researcher discussed with the research assistants any problems or unclear items throughout the training process. Modification of items and data collection techniques were conducted until acceptable reliability was obtained.

Data collection phase

1. Permission for reviewing medical records was obtained from potential participants at outpatient TB clinics.

2. Permission for data collection was obtained from each person with PTB and his/her FM-DOT observer who met the inclusion criteria. The procedures were performed step by step as follows:

2.1 The nurses or health care personnel at outpatient TB clinics introduced the researcher to the target participants.

2.2 The researcher or research assistant introduced herself, purposes of the study, and the procedures that need people with PTB and FM-DOT observers to involve in the study were explained.

2.3 People with PTB and FM-DOT observers were asked to do verbalization of willingness to participate in the study and each subject's agreement was signed.

3. After each pair of subjects, the person with PTB and his/her FM-DOT observer, agreed to participate in the study and signed the consent form, a structured-interview was conducted by the researcher and a research assistant. The Demographic data form, RPF-FMQ, and RPC-FMQ were sequentially administered were interviewed

separately to the person with PTB and the FM-DOT observer. Each item of the questionnaires was read to the subject and their response recorded item by item.

4. All questionnaires were checked for completion and data coding and management were performed.

Data Analysis

Data were analyzed using the Statistical Package for Social Science (SPSS). The analysis procedures were performed in 4 parts:

1. Frequency, percentage, range, mean, and standard deviation were used for analysis of demographic data of FM-DOT observers and people with PTB.

2. Mean and standard deviation were used to analyze subtotal scores and total scores of role perception and role performance of FM-DOT observers perceived by FM-DOT observers and people with PTB.

3. Pearson's product moment correlation coefficients were used to test the relationships between total role perception score and total role performance score, and between subtotal role performance scores of FM-DOT observers perceived by FM-DOT observers and perceived by people with PTB. Before using the Pearson's product moment correlation coefficients, scores of those variables were tested for normality by using the Kolmogorov-Smirnov (KS) test.

4. Independent t-test was used to compare mean differences of:

4.1 Total role performance scores of FM-DOT observers perceived by FM-DOT observers and people with PTB

4.2 FM-DOT observer's role performance subtotal score: treatment regimen support perceived by FM-DOT observers and people with PTB

4.3 FM-DOT observer's role performance subtotal score: psychosocial support perceived by FM-DOT observers and people with PTB

4.4 FM-DOT observer's role performance subtotal score: financial support perceived by FM-DOT observers and people with PTB

4.5 FM-DOT observer's role performance subtotal score: case finding perceived by FM-DOT observers and people with PTB