

## CHAPTER 4

### RESULTS AND DISCUSSION

#### Results

This descriptive study was 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, and to examine the differences of FM-DOT observers' role performance as perceived by FM-DOT observers and people with PTB. In this chapter the results of data analysis and discussion are presented in 5 parts with tables and descriptions as follows:

1. Demographic data of FM-DOT observers and people with PTB
2. Role perception and role performance of FM-DOT observers as perceived by FM-DOT observers.
3. The relationships between role perception and role performance of FM-DOT observers as perceived by FM-DOT observers.
4. Role perception and role performance of FM-DOT observers as perceived by people with PTB
5. The difference of FM-DOT observers' role performance as perceived by FM-DOT observers and people with PTB

## **1. Demographic data of FM-DOT observers and people with PTB**

### **1.1 Demographic data of FM-DOT observers**

As shown in Table 1, most of the FM-DOT observers (83.1%) were female, while 16.9% of them were male. While the age of the subjects ranged from 15 to 75 years old with a mean age of 37.92 years old (S.D. = 15.71), the largest proportion (41.5%) were 15-30 years old. The majority of FM-DOT observers (69.2%) were married and Muslim (61.5%). More than half of the subjects' educational background (53.8%) was primary school, while 30.8% was secondary school. For occupation, 29.2% were agriculturists and 27.7% were employees. One-third of FM-DOT observers (33.8%) reported an inadequate family income with many of the subjects having a family income of 3,000-6,000 baht per month (41.5%)(average income = 8,138 baht ), while 22.4% had 5-7 people in the family. A majority of the subjects had no underlying disease (80%), lived with the patients in the same household (92.3%), and had no past experience of taking care of a TB patient (92.3%).

Most of the FM-DOT observers (89.2%) had received information regarding TB and caring for TB patients. Their sources of information were TB clinic staff (78.5%) and physicians and nurses (35.4%). One-third of the subjects (32.3%) reported having health center staff visit them and their patients at home.

**Table 1** Frequency and percentage of FM- DOT observer's demographic characteristics

(N = 65)

Characteristics	Frequency (N)	Percentage (%)
Gender		
Female	54	83.1
Male	11	16.9
Age (years)		
15-30	27	41.5
31-45	17	26.2
46-60	16	24.6
> 60	5	7.7
Marital status		
Single	15	23.1
Married	45	69.2
Widowed	4	6.2
Divorced / Separated	1	1.5
Religion		
Buddhist	25	38.5
Islam	40	61.5
Educational level		
No formal education	3	4.6
Primary school	35	53.8
Secondary school	20	30.8
Diploma	6	9.2
Bachelor's degree	1	1.5
Occupation		
Unemployed	13	20
Employee	18	27.7
Agriculturists	19	29.2
Trade/ Business person	11	16.9
Others (Student)	4	6.2
Adequacy of family income		
Adequate	43	66.2
Inadequate	22	33.8

**Table 1** (Continued)

Characteristics	Frequency (N)	Percentage (%)
Averaged family income (Baht per month)		
3,000-6,000	27	41.5
6,001-9,000	20	30.8
9,001-12,000	7	10.8
12,001-15,000	10	15.4
>15,000	1	1.5
Presence of any illnesses		
Yes	13	20
No	52	80
Types of illnesses		
Hypertension	3	23.1
Diabetes mellitus	2	15.4
Hypertension + Diabetes mellitus	2	15.4
Allergy	2	15.4
Arthritis	4	30.8
Number of family members (people)		
2- 4	28	20.9
5-7	30	22.4
8-10	5	3.7
11-13	2	1.5
Relationship to patient		
Mother	7	10.8
Husband	4	6.2
Wife	20	30.8
Sibling	5	7.7
Son	1	1.5
Daughter	23	35.4
Others (Grandmother, Niece, Daughter in law, and Uncle)	5	7.7
Living with the patient in the same household		
Yes	60	92.3
No	5	7.7
Duration as FM-DOT observer		
2 months	24	36.9
3 months	16	24.6
4 months	25	38.5

**Table 1** (Continued)

Characteristics	Frequency (N)	Percentage (%)
Past experience of taking care of patient		
Yes	5	7.7
No	60	92.3
Severity of illness as perceived by observer		
Severe	23	35.4
Moderate	31	47.7
Mild	5	7.7
Not severe	6	9.2
Level of following instructions		
High	12	18.5
Moderate	52	80
Low	1	1.5
FM-DOT observer receiving information about TB /caring for TB patients		
Yes	58	89.2
No	7	10.8
Sources of information (select more than one answer)		
Leaflet	11	16.9
Radio, television	2	3.1
Physician, nurse	23	35.4
TB clinic staff	51	78.5
Health center staff	13	20
Magazines, newspaper	2	3.1
Others (Zonal tuberculosis center 12 staff, classes at school, talking with TB patient, and neighborhood	14	21.5
Health center staff visit patient's home		
Yes	21	32.3
No	44	67.7
Number of home visits		
One time	2	9.5
Two times	9	42.8
Three times	7	33.3
Five times	1	4.8
Eight times	2	9.5

## 1.2 Demographic characteristics of people with PTB

Table 2 shows that the majority of people with PTB were male, Muslim, and married (72.3%, 60%, and 70.8% respectively). The mean age of the subjects was 51.08 years old, ranging from 15 to 84 years old. Most of them had an educational background to primary level, and were unemployed (27.7%).

**Table 2** Frequency and percentage of demographic characteristics of people with pulmonary tuberculosis (N = 65)

Characteristics	Frequency (N)	Percentage (%)
Gender		
Female	18	27.7
Male	47	72.3
Age (years)		
15-30	11	16.9
31-45	15	23.1
46-60	16	24.6
> 60	23	35.4
Marital status		
Single	6	9.2
Married	46	70.8
Widowed	6	9.2
Divorced / Separated	7	10.8
Religion		
Buddhist	26	40
Islam	39	60
Educational level		
No formal education	18	27.7
Primary school	32	49.2
Secondary school	13	20.0
Diploma	2	3.1

**Table 2** (Continued)

Characteristics	Frequency (N)	Percentage (%)
Occupation		
Unemployed	18	27.7
Employee	15	23.1
Agriculturists	17	26.2
Government official	1	1.5
Trade/ Business person	9	13.8
Others (Student, Retired )	5	7.7
Duration of receiving treatment		
2 months	24	36.9
3 months	15	23.1
4 months	26	40

## **2. Role perception and role performance of FM-DOT observers as perceived by FM-DOT observers**

### **2.1 Role perception of FM-DOT observers as perceived by FM-DOT observers**

Table 3 shows the total and subtotal of the role perception scores of FM-DOT observers. The mean total role perception score was 69.08 (S.D.= 5.09). The mean subtotal role perception score in treatment regimen support was 27.89 (S.D.= 3.64), psychosocial support was 18.02 (S.D.= 1.81), financial support was 13.63 (S.D. = 1.82), and case finding was 9.54 (S.D. = 1.31). The results indicate that the total and subtotal role perception scores were moderate.

**Tables 3** Possible range of score, actual range of score, mean, standard deviation, and levels of role perception among FM-DOT observers (N= 65)

Variable	Range of score		$\bar{X}$	S.D.	Level
	Possible range of score	Actual range of score			
Treatment regimen support	8-32	18-32	27.89	3.64	Moderate
Psychosocial support	5-20	14-20	18.02	1.81	Moderate
Financial support	4-16	8-16	13.63	1.82	Moderate
Case finding	3-12	6-12	9.54	1.31	Moderate
Total	20-80	51-77	69.08	5.09	Moderate

## 2.2 Role performance of FM-DOT observers as perceived by FM-DOT observers

Table 4 shows that the percentage of total role performance had a mean score of 66.00 (S.D.= 6.13). The result indicates that the total role performance of FM-DOT observers had a level of fair. The percentage of treatment regimen support had a mean score of 66.23 (S.D. = 11.93) indicating that treatment regimen support was at a level of fair. The percentage of psychosocial support had a mean score of 74.78 (S.D. = 7.37) which reached a level of moderate role performance. The percentage of financial support



had a mean score of 52.34 (S.D. = 11.71) while case finding had a mean score of 38.40 (S.D. = 17.75) indicating that financial support and case finding were at a level of poor role performance.

**Table 4** Actual range of score, percentage actual range of score, mean, standard deviation, and levels of role performance among FM-DOT observers (N= 65)

Variable	Range of score		$\bar{X}$	S.D.	Level
	Actual range of score	Percentage range of score			
Treatment regimen support	28-65	41-88	66.23	11.93	Fair
Psychosocial support	32-51	57-91	74.78	7.37	Moderate
Financial support	4-17	25-71	52.34	11.71	Poor
Case finding	1-10	25-100	38.40	17.75	Poor
Total	78-122	53-78	66.00	6.13	Fair

Table 5 shows FM-DOT observer's role performance in each item of treatment regimen support, psychosocial support, financial support, and case finding.

In treatment regimen support, results of the study showed that most of the respondents "always" or "often" allowed the patient to participate in the decision making about their treatment (83.1% and 16.9%), provided nutritious food for the patient (66.2%

and 21.5%), and encouraged the patient to sleep and have adequate rest of at least 8 hours.

In psychosocial support, it was found that most of the respondents “always” and “often” encouraged the patient to participate in leisure activities, shared the ideas with family members (58.5% and 29.2%) and avoided talk that could make the patient feel unhappy (56.9% and 43.1%).

In financial support, the majority of respondents “always” and “often” provided and took care of things the patient used for daily living (56.9% and 16.9%), assisted and supported the patient with expenditure for medication, treatment, and transportation (27.7% and 33.8%). Whereas, none of the respondents had ever consulted and referred the patient to a social worker of a hospital or related organization.

In case finding activities, two-thirds of the respondents had “sometimes” to “never” advised and motivated neighbors or other suspects of TB to be checked up (21.5% and 40%). Three-fourths of them had “sometimes” or “never” advised and motivated family members living in the same household with the patient to be checked with chest x-ray, and sputum examination at a health care center.

**Table 5** Frequency and percentage of FM-DOT observer's role performance in each item as perceived by FM-DOT observers (N = 65)

Activity	Always (%)	Often (%)	Some Times (%)	Never (%)	Not applicable (%)
<b>1. Treatment regimen support</b>					
1. You consult physician or TB clinic staff for advice whenever you have any questions.	2 (3.1)	20 (30.8)	14 (21.5)	29 (44.6)	-
2. You allow the patient to participate in the decision making about his/her treatment.	54 (83.1)	11 (16.9)	-	-	-
3. You take care of and provide the patient with clean clothes and expose their linen to the sunlight	15 (23.1)	30 (46.2)	10 (15.4)	-	-
4. You advise the patient to stop drinking alcohol and smoking.	1 (1.5)	8 (12.3)	1 (1.5)	-	55 (84.6)
5. You provide the patient with nutritious food which includes the five nutrients such as rice, meat, eggs, vegetable, and fruits.	43 (66.2)	14 (21.5)	5 (7.7)	3 (4.6)	-
6. You encourage the patient to sleep and have adequate rest; at least 8 hours per day.	15 (23.1)	41 (63.1)	8 (12.3)	1 (1.5)	-
7. You instruct and motivate the patient to do regular exercise such as walking.	3 (4.6)	19 (29.2)	23 (35.4)	20 (30.8)	-
8. You instruct the patient to cough and sneeze into a tissue to prevent disease transmission.	3 (4.6)	20 (30.8)	20 (30.8)	22 (33.8)	-

Activity	Always	Often	Some	Never	Not
	(%)	(%)	Times (%)	(%)	applicable (%)
9. You instruct the patient to spit secretion or saliva into a closed container.	3 (4.6)	15 (23.1)	12 (18.5)	35 (53.8)	-
10. You instruct the patient to burn or flush secretion down the toilet.	4 (6.2)	13 (20.0)	10 (15.4)	38 (58.5)	-
11. You keep the house and surrounding area clean.	27 (41.5)	27 (41.5)	6 (9.2)	5 (7.7)	-
12. You ventilate patient's room by opening windows, and doors and encourage exposure to sunlight.	38 (58.5)	17 (26.2)	7 (10.8)	3 (4.6)	-
13. You prepare the TB drugs into packet for each dose for the patient.	9 (13.8)	25 (38.5)	11 (16.9)	20 (30.8)	-
14. You watch the patient swallowing the medicine until it is all taken.	12 (18.5)	23 (35.4)	20 (30.8)	10 (15.4)	-
15. You mark ✓ on the correct day on the DOT card each time after observing each dose of drug intake.	16 (24.6)	19 (29.2)	13 (20.0)	17 (26.2)	-
16. You mark ✓ on DOT card for several doses at the same time.	5 (7.7)	12 (18.5)	22 (33.8)	9 (13.8)	17 (26.2)
17. You did not go with the patient for the follow up appointment and collecting new drug supply.	14 (21.5)	8 (12.3)	17 (26.2)	26 (40.0)	-
18. You observe and ask the patient about possible side effects of TB drugs such as rash, nausea, vomiting, dizziness, and hearing loss.	5 (7.7)	33 (50.8)	22 (33.8)	5 (7.7)	-
19. You remind the patient to take DOT card to the hospital when he/she visits TB clinic.	24 (36.9)	21 (32.3)	8 (12.3)	12 (18.5)	-

Activity	Always (%)	Often (%)	Some Times (%)	Never (%)	Not applicable (%)
<b>2. Psychosocial support</b>					
20. You encourage the patient to stay at home, avoiding exposure to crowds to prevent disease transmission.	1 (1.5)	7 (10.8)	11 (16.9)	46 (70.8)	-
21. You give the patient an opportunity to participate in activities of daily family life such as watering plants, washing dishes.	15 (23.1)	17 (26.2)	9 (13.8)	24 (36.9)	-
22. You encourage the patient to participate in family recreational activities such as the new year day, Songkran festival.	5 (7.7)	14 (21.5)	18 (27.7)	28 (43.1)	-
23. You encourage the patient to participate in social and community activities such as join the religious practice, Songkran festival.	5 (7.7)	11 (16.9)	18 (27.7)	31 (47.7)	-
24. You encourage the patient to participate in leisure activities, and sharing ideas with family members, such as listening to to radio, reading newspaper, watching television.	38 (58.5)	19 (29.2)	8 (12.3)	-	-
25. You encourage the patient to have social interaction with neighbors and friends.	10 (15.4)	21 (32.3)	19 (29.2)	15 (23.1)	-
26. You avoid talk that could make the patient feel unhappy.	37 (56.9)	28 (43.1)	-	-	-
27. You usually leave the patient alone and do not ask them if they have any problem.	-	5 (7.7)	12 (18.5)	48 (73.8)	-

Activity	Always	Often	Some	Never	Not
	(%)	(%)	Times (%)	(%)	applicable (%)
28. You listen to the problems and feeling of the patient and give them an opportunity to express their grief.	10 (15.4)	46 (70.8)	9 (13.8)	-	-
29. You provide a warm response to the patient by showing concern, and sympathy when they have abnormal signs and symptoms such as fatigue, cough, and dyspnea.	31 (47.7)	31 (47.7)	3 (4.6)	-	-
30. You always use negative words in order to stimulate them to improve their self-care ability and follow instructions.	1 (1.5)	8 (12.3)	25 (38.5)	31 (47.7)	-
31. You avoid close contact with the patient because of fear of being infected with TB.	-	-	5 (7.7)	60 (92.3)	-
32. You instruct the patient to follow religious practices when he/she feels stressed or discouraged.	1 (1.5)	33 (50.8)	9 (13.8)	22 (33.8)	-
33. You suggest the patient reduces stress by watching television, listening to the radio, or telling a funny story to them.	27 (41.5)	25 (38.5)	11 (16.9)	2 (3.1)	-
<b>3. Financial support</b>					
34. You provide and take care of things the patient uses in daily living.	37 (56.9)	11 (16.9)	10 (15.4)	7 (10.8)	-
35. You assist and support the patient in expenditure for medication, treatment, and transportation.	18 (27.7)	22 (33.8)	10 (15.4)	1 (1.5)	14 (21.5)
36. You assist and support with household expenditure.	18 (27.7)	22 (33.8)	10 (15.4)	1 (1.5)	14 (21.5)

Activity	Always	Often	Some	Never	Not
	(%)	(%)	Times	(%)	applicable
	(%)	(%)	(%)	(%)	(%)
37. You consult with and refer the patient to the social worker of the hospital or related organization.	-	-	-	65 (100)	-
38. You participate in planning for treatment expenditure and saving some income to use in case of emergency.	3 (4.6)	4 (6.2)	18 (27.7)	40 (61.5)	-
39. You encourage the family member to save their money in order to support the patient when necessary	-	2 (3.1)	12 (18.5)	51 (78.5)	-
<b>4. Case finding</b>					
8. You advise and motivate neighbors or others suspected of having TB to be checked with chest x-ray, sputum examination at a health care center.	1 (1.5)	5 (7.7)	14 (21.5)	26 (40)	19 (29.2)
9. You advise and motivate family members living in the same household with the patient to be checked with chest x-ray, sputum examination at health care center.	2 (3.1)	15 (23.1)	7 (10.8)	41 (63.1)	-
10. You advise and motivate children in contact's household who are aged below five years and have never received BCG vaccination before, to be vaccinated.	1 (1.5)	1 (1.5)	-	26 (40)	37 (56.9)

### 2.3 Additional interview data from FM-DOT observers regarding reasons for not practicing DOT activities

After the role performance questionnaire was completed, the items that had never been practiced by the FM-DOT observers were explored further for the reasons for not practicing them. Additionally, the reasons for not giving treatment regimen support were also explored. FM-DOT observers identified several barriers that they perceived as a limitation in the performance of their DOT activities. The main roles of FM-DOT observers in DOT activities were preparing anti-TB drugs for the patients, watching the patients swallow the anti-TB drugs, and marking the DOT card. There were top two activities that most FM-DOT observers had never practiced: consultation and referring the patient to the social worker of hospital; and encouragement of family members to save their money for the patient.

**Table 6** Frequency, and percentage of the reasons for not practicing DOT activities

Activities/Reasons	Frequency (N)	Percentage (%)
1. Preparing anti-TB drugs for the patients		
- It was unnecessary because it was not difficult for the patients (one packet per one dose)	8	40



Activities/Reasons	Frequency (N)	Percentage (%)
- The patient could do it themselves	7	35
- Did not stay with the patient in the same household	4	20
- Being busy with daily work	1	5
Total	20	100
2. Watching the patient swallow the anti-TB drugs		
- Trusted that the patient would do because he/she wanted to be cured	4	40
- Taking medication was self-care activity	3	30
- Had other activities to do at the same time	2	20
- Did not know it was her job	1	10
Total	10	100
3. Marking the DOT card after the anti- TB drugs were taken		
- It was unnecessary because it was not difficult for the patients	10	58.82
- Could not read the date on DOT card	3	17.64
- The patients should mark DOT card straight away after the drugs were taken	2	11.76

Activities/Reasons	Frequency (N)	Percentage (%)
- It was the patient desire to marked DOT card by him/herself	1	5.88
- Did not know it was her job	1	5.88
Total	17	100
4. Consultation and referring the patient to the social worker of the hospital		
- They were charged only 30 baht or none for a visit	55	84.62
- Some of them might need to pay a little money for transportation and service that did not affect them much	10	15.38
Total	65	100
5. Encouragement of the family member to save their money for the patient		
- Family income was low, so did not have money to be saved	51	100
Total	51	100

### 3. The relationships between role perception and role performance of FM-DOT observers as perceived by FM-DOT observers

The Kolmogorov-Smirnov (KS) test was used to examine for normal distribution of the role perception and role performance scores. A nonsignificance of Kolmogorov-Smirnov (KS) for the scores of role perception and role performance were  $p = .11$ , and  $p = .25$  ( $p > .05$ ). According to the nonsignificance of KS, role perception and role performance scores showed normal distribution assumption. The relationships between role perception and role performance of FM-DOT observers were analyzed by using Pearson's correlation coefficient.

**Table 7** Pearson correlation coefficients between role perception scores and role performance scores of FM-DOT observers (N = 65)

Role performance	Role perception
	Correlation coefficients (r)
Treatment regimen support	.13
Psychosocial support	.11
Financial support	-.00
Case finding	-.06
Total	.13

Table 7 shows there were no relationships between the total role perception scores and total role performance scores ( $r = .13$ ,  $p > .05$ ), and between total role perception scores and subtotal role performance scores.

#### 4. Role perception and role performance of FM-DOT observer as perceived by people with pulmonary tuberculosis

##### 4.1 Role perception of FM-DOT observers as perceived by people with PTB

**Tables 8** Possible range of score, actual range of score, mean, standard deviation, and levels of role perception of FM-DOT observers as perceived by people with PTB (N= 65)

Variable	Range of score		$\bar{X}$	S.D.	Level
	Possible range of score	Actual range of score			
Treatment regimen support	8-32	17-32	27.75	3.58	Moderate
Psychosocial support	5-20	11-20	17.48	2.36	Moderate
Financial support	4-16	4-16	13.17	2.25	Moderate
Case finding	3-12	3-12	9.74	1.65	Moderate
Total	20-80	55-77	68.14	5.38	Moderate

Table 8 shows the total and subtotal role perception score of FM-DOT observers as perceived by people with PTB. The mean total role perception score was 68.14 (S.D. = 5.38). The mean subtotal role perception score on treatment regimen support was 27.75 (S.D.= 3.58), psychosocial support was 17.48 (S.D.= 2.36), financial support was 13.17 (S.D.= 2.25), and case finding was 9.74 (S.D.= 1.65). The results indicate that the total and subtotal role perception scores as perceived by people with PTB were moderate.

#### 4.2 Role performance of FM-DOT observers as perceived by people with PTB

Table 9 shows the total and subtotal role performance scores of FM-DOT observers as perceived by people with PTB. The percentage of total role performance had a mean score of 62.72 (S.D. = 6.54) indicating that the total role performance of FM-DOT observers as perceived by people with PTB was at a level of fair. The mean percentage score of treatment regimen support was 62.08 (S.D. = 11.18), of financial support 51.57 (S.D. = 12.26) and of case finding 36.86 (S.D. = 18.02), putting them at a poor level of role performance. Whereas, psychosocial support had a mean percentage score of 71.57 (S.D. = 7.71) giving it a moderate level of role performance.

**Table 9** Actual range of score, percentage actual range of score, mean, standard deviation, and levels of role performance of FM-DOT observers as perceived by people with PTB (N= 65)

Variable	Range of score		$\bar{X}$	S.D.	Level
	Actual range of score	Percentage range of score			
Treatment regimen support	27-60	40-83	62.08	11.18	Poor
Psychosocial support	29-51	52-91	71.57	7.71	Moderate
Financial support	4-19	25-79	51.57	12.26	Poor
Case finding	1-7	25-100	36.86	18.02	Poor
Total	74-122	47-76	62.72	6.54	Fair

##### **5. The difference of FM-DOT observers' role performance as perceived by FM-DOT observers and people with PTB**

The independent t-test was used to compare the mean differences of total and subtotal role performance scores of FM-DOT observer perceived by FM-DOT observers and people with PTB. As shown in Table 10, the mean of the total score and treatment regimen support and psychosocial support subtotal scores of FM-DOT observers are

significantly higher than people with PTB. However, there are no significant differences between the mean of financial support subtotal scores and case finding subtotal scores between FM-DOT observers and people with PTB.

**Table 10** Independent t-test for comparing mean differences of total and subtotal role performance scores of FM-DOT observer as perceived by FM-DOT observers and people with PTB (N = 65)

Variables	FM-DOT observers		People with PTB		t	p-value
	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Treatment regimen support	66.23	11.93	62.08	11.18	2.05*	.04
Psychosocial support	74.78	7.37	71.57	7.71	2.43*	.01
Financial support	52.34	11.71	51.57	12.26	.37	.71
Case finding	38.40	17.75	36.86	18.02	.49	.62
Total	66.00	6.13	62.72	6.54	2.95*	.00

\* p < .05

## **Discussion**

The findings from the study will be discussed. The details will be organized into six parts according to the research objectives and hypotheses of this study.

### **1. Characteristics of FM-DOT observers and people with PTB**

#### **1.1 Characteristics of FM-DOT observers**

The majority of assigned FM-DOT observers (83.1%) were female and married. This was possibly because most of the FM-DOT observers were daughters (35.4%) and wives (30.8%) of the people with PTB. The finding is consistent with Thai culture, whereby women are the predominant caregivers and caregiving is seen as women's work rather than men's work (Songwattana, 2001). Regarding the relationships with the patients, the findings showed that 36.9% of assigned FM-DOT observers were adult children, either son/ daughter, followed by wives of the people with TB (30.8%). This indicated that the predominant caregivers were direct family members. The majority of them (41.5%) were young, aged ranging from 15-30 years old. This might be because in Thai culture, children are usually expected to take care of their parents when they retire or are sick, as a way of showing their gratefulness (Songwattana, 2001; Yanwaree, 2002). These FM-DOT observers' characteristics are similar to the study of Kasetjareon et al. (1995) which found that most FM-DOT observers were female and adult children followed by wives. The majority of them (66.34%) were aged 16- 45 years. This is further supported by a study in people supervising TB treatment in Malawi, sub-Saharan Africa (Manders, et al., 2001). Manders and colleagues found that there were almost



twice as many women as men supervising the TB treatment. This may be because more women were unemployed or because culturally women are expected to perform caregiving tasks. The principal occupations of the subjects were agriculturists (29.2%) and employees (27.7%), so they might have more flexibility of time to take care of the sick family member.

### 1.2 Characteristics of people with PTB

The majority of the subjects with PTB (72.3%) were male ranging in age from 15 to 84, with a mean age of 51.08 years and the majority (35.4%) older than 61 years. These data are congruent with the epidemiology of tuberculosis around the world; males are more likely to have been infected than females (Comstock, 2000) and tuberculosis has become two to four times more prevalent among people older than 65 years of age. This group had a significantly higher risk of being infected with *M. tuberculosis* as children, when the prevalence of tuberculosis was higher (Saltini & Vezzani, 1999). It is believed that the aging process weakens the immune system that further increases the likelihood of tuberculosis infection in older people.

A great number of the subjects (70.8%) were married. The majority of them (76.9%) had low education with nearly half (49.2%) only having primary school level of education followed by no formal education (27.7%). About 27.7% of the subjects were unemployed and 26.2% of them were agriculturists. This data is congruent with Buranajam, Thaveesuck, and Padungsamai's studies (1997) which revealed that the majority of tuberculosis patients had a low education, low socio-economic status and poor hygienic environment.

## **2. Role perception and role performance of FM-DOT observers as perceived by FM-DOT observers.**

### 2.1 Role perception of FM-DOT observers as perceived by FM-DOT observers.

The results illustrated that the total and subtotal role perception scores of the FM-DOT observers were at moderate level (Table 3). This may be because of inadequate information. One possible reason was that some of assigned FM-DOT observers (10.8%) never received information regarding tuberculosis and /or taking care of TB patients. Additionally, most of them had not received good health education regarding the disease and DOTS. Approximately 21.5 percentage of FM-DOT observers did not attend teaching and training sessions during TB clinic attendance. In this study, the FM-DOT observers mainly received information regarding TB/ taking care of someone with PTB from health care personnel.

Another possible reason was inadequate health education. The researcher observed during data collection that the staff of the TB clinic had limited time due to many routine duties and an overload of care for several patients at the same time. TB clinic staff did not provide a standard education program for DOT observers and people with PTB. However, a professional health care team was still an important resource of information, especially TB clinic staff, physicians, and nurses because the professional health care team was more familiar with the former strategies (Information, Education, and Communication) (IEC) that are important in TB control programmes (Klaudt, 2000; WHO, 2002). Therefore, it was necessary for a professional health care team to provide effective information to people with PTB and their FM-DOT observers. In addition, the

information may need to be repeated often for clarity and to promote understanding. It is best to strive for continuity of teaching during treatment.

## 2.2 Role performance of FM-DOT observers as perceived by FM-DOT observers.

The results indicated that the total role performance of FM-DOT observers was at a fair level (Table 4). This is inconsistent with the finding from the previous study conducted by Tiptus (2000) with 40 family members-DOT observers in Phitsanulok province. She found that the total mean score of the role of family members in caring for tuberculosis patients fell into the moderate level (76.9 %). There were four components influencing the role performance of the FM-DOT observers in this study: (1) FM-DOT observer, (2) people with PTB, (3) Health care personnel, and (4) Policy and practice guideline.

### 1. FM-DOT observer

The role performance score was not high in this study maybe because firstly, FM-DOT observers could not apply what they had learnt to the real situation and could not synthesize the knowledge to manage their care performance. Secondly, even though the FM-DOT observers might perceive what their role is and know how to perform it but they did not want to do it because most of the TB clients were independent. They could perform activities of daily living by themselves, so the FM-DOT observers tended to leave their allocated tasks to them and helped them with only some activities. However, when the FM-DOT observers were asked about the perceived severity of the illness, the majority of them perceived the illness to be moderate (47.7%) to severe (35.4%). This confirms that they were aware that although pulmonary tuberculosis is an

infectious disease and can easily spread to others, the disease does not have much affect on the clients' ability to perform activities of daily living.

## 2. People with PTB

Some patients perceived that they did not need support and assistance from FM-DOT observers. As they could perform many activities by themselves. However, some patients did not trust their observer, while a few of them felt annoyed when the FM-DOT observer directly observed them or reminded them to take the drugs.

## 3. Health care personnel

During the data collection, the researcher interviewed TB clinic staff and health care personnel and found that some health center staff in this study had never been trained in the DOTS training course because of the high turnover rate of health personnel. Thus, many did not have specific knowledge and skills in the DOTS practice guidelines regarding the role of DOT observers and had minimal experience in practicing DOT activities. This was similar to the study in Indonesia by Siripanichgon, Lubis, Sujirarat, and Vathanophas (1999) reporting that factors associated with the unsuccessful DOTS program for pulmonary tuberculosis were an inadequate provision of health education during the course of treatment and number of health staff trained in DOTS in the health centers.

Another problem was the ineffective and inadequate supervision of FM-DOT observers by health center staff. According to the practice guidelines for DOTS of TB patients, even though, FM-DOT observers were to manage treatment, the health center staff were still responsible for visiting the patients and their FM-DOT observers at

home without appointment (surprise home visit) at least once a week during the first two months of treatment. The purpose of the visit was to monitor drug administration at home, give consultation, advise and provide health education to FM-DOT observers. The questionnaire revealed that only 32.3% of the subjects had health center staff visit them at home. Only 9.5% of the health center staff visited the patient's homes during the initial phase at the expected frequency of 8 times. Lack of quality and adequate supervision might have affected the quality of the role performed by FM-DOT observers.

The results suggest that the selection process of FM-DOT observers was not appropriate. Assigned FM-DOT observers could not perform their caring tasks effectively because they did not all stay with the patients in the same household. Some of them worked or studied in another district or province. Additionally, health center staff assigned some FM-DOT observers who were old, or had never received formal education that might have affected their ability to learn and perform their FM-DOT tasks.

#### 4. Policy and practice guideline

The DOTS strategy has only been implemented in Thailand since 1997, and has only covered all districts in Southern region since 2001 (Rattanasuwan, 2002). The principles of the policy and practice guidelines are still not clear. Although, there were practice guideline of DOT observers developed by Tuberculosis Division, Ministry of Public Health of Thailand in 1998 and distributed to hospitals and TB clinics, many health care staff do not pay much attention and seriously follow the DOT observer practice guideline. On the other hand, as the practice guideline has been developed for all types of DOT observers (health personnel, community members, and family members),

modification may be needed when being used with each type of observer. It does not fit the real practices of the FM-DOT observers in their responsibilities and duties and this could have affected their performance.

Role performance of FM-DOT observers as perceived by FM-DOT observers was presented in four aspects according to the practice guidelines; 1) treatment regime support, 2) psychosocial support, 3) financial support, and 4) case finding.

#### 1. Treatment regimen support

The results revealed that role performance of FM-DOT observers on treatment regimen support was at a fair level. One possible explanation may be that most of the families in this study were extended family. They had other family members to share responsibility in household chores, assistance in general caring, while assigned FM-DOT observers took the partial role; for example, responsibilities for only directly observing drug intake or going with the patient for follow up appointments. This indicated that even though the score of role performance of FM-DOT observer was not high, the caring activities for the people with PTB had been taken care of.

Considering the items of activities to prevent disease transmission (Table5), most subjects never instructed the patient to cover their mouth when coughing or sneezing, disposing of sputum appropriately and placing it in a closed container suggesting that the FM-DOT observers might lack awareness in the importance of transmission prevention. This finding was also supported by another study, (Wongtongdee et al., 1998), which found that 38.1% of household TB contacts never instructed the patient to cover their mouth when coughing or sneezing, 50.7% of them

never instructed the patient about spitting secretions into a closed container, and 43.7% of them never instructed the patients in disposing of sputum appropriately

In the items of general care activities (Table 5), most subjects had “often” or “always” practiced some activities such as providing nutritious food, adequate rest, clean clothes, and a clean and well ventilated house. It was obvious that the basic care needs of sick people, which could be easily performed, were well looked after.

The main role of FM-DOT observers is to ensure the patient takes the anti-TB drugs regularly, on schedule, and for the full duration of the treatment. However, the number of FM-DOT observers who regularly performed drug intake observation was low as seen in Table 5. There was 30.8 percent of the subjects who never prepared the anti-TB drugs for the patient, and only 15.4% and 26.2% watched the patient taking the anti-TB drug, and marked the DOT card after anti-TB drugs were taken, respectively.

The five top reasons given by the FM-DOT observers as to why they did not perform DOT activities (Table 6) were 1) DOT was unnecessary because it was not difficult for the patients, 2) The patient could do it themselves, 3) Trusted that the patient would do because he/she wanted to be cured, 4) They did not stay with the patient in the same household (study in downtown, work at another place), and 5) Taking medication was a self-care activity. These findings suggest that the assigned FM-DOT observers did not understand the importance of their role as DOT observer. Which may be because they did not accept the concept of DOT or were not really willing to practice the role of FM-DOT observer.

The DOT card is a mechanism for assisting in recording drug administration and drug intake and help health center staff to monitor drug administration at home during the supervision of DOT. Yet, almost 26% of FM-DOT observers never signed the DOT card and nearly half of them (49.2%) signed the DOT card irregularly (Table 5). The main reason given by FM-DOT observers as to why they did not mark the DOT card was that it was unnecessary because it was not difficult for the patients (Table 6). During data collection at patients' residents, the researcher found that some of the FM-DOT observers did not mark any symbol on the DOT card although the patients had taken the drugs for many days. Some of them marked the DOT card completely through out the month although the patients only took drugs for a few days and several marked the card through out the month before they accompanied patients to follow up appointments. This revealed that FM-DOT observers did not always directly observe drug intake and it could be assumed that they did not understand the importance of DOT or the benefits of the DOT card.

## 2. Psychosocial support

In psychosocial support the FM-DOT observers had an overall moderate role performance whereas for the family/ emotional support, the results showed that the majority of them regularly or often provided the people with PTB sympathy, warmth, attention, leisure activities, and other types of relief activities (Table 5). Similarly, the study of Wongthai (2001) with 100 tuberculosis patients revealed that the patients had obtained support from their spouses and children in terms of emotional, information and tangible support. Overall, the degree of support in the 3 aspects were enormous especially



the emotional support. However, almost half the FM-DOT observers had never encouraged the patients to participate in family recreational, social, and community activities. This might be because FM-DOT observers wanted to protect their sick family members from being shunned by other people around them, including relatives, friends, and neighbors. Moreover, FM-DOT observers mentioned that they did not tell other people about TB disease because they wanted to ensure a normal life and did not want to be rejected due to the possible spread of the disease. A study conducted by Phengjard et al. (2002) showed similar findings in experiences of family caregivers. They found that the families experienced rejection and discrimination. Keeping silent was employed to prevent psychological suffering, by being shunned, for both people living with HIV/AIDS and other family members. Hence, the families utilized minimizing social contact to maintain their silence.

### 3. Financial support

According to the performance of FM-DOT observers on financial support aspects, the results showed that the majority of them had poor performance. According to the preliminary report of the National Statistical Office (2001), the average monthly income per household in the southern region was 11,407 Baht. Based on the FM-DOT observers' self-report in this study, only 16.9% of FM-DOT observers had an average family income more than 12,000 Baht per month. Almost half of the subjects (41.5%) reported that their family income was 3,000-6,000 Baht per month. Therefore, the economic status of the subjects in this study was very low. In addition, 21% of the FM-DOT observers in this study did not work, so they could not help the patient

economically. However, there were no requests to the social worker of the hospital to receive financial aid (Table 6) because they paid only 30 Baht for the hospital service fee each time according to the universal health coverage policy. There were usually no costs for medication and investigations. The FM-DOT observers in this study usually used public or personal transportation (normally motorcycle), so it did not cost them much.

#### 4. Case finding

The FM-DOT observers are also expected to prevent the spread of the disease by encouraging the people who are at risk through contact with TB patients to have their health checked regularly and the children less than 5 who have never received a BCG vaccination to be vaccinated. The FM-DOT observers had poor performance in case finding activities and the majority (40%) had never practiced advising and motivating neighbors or others who were suspected of having TB to be investigated. The main reason was that FM-DOT observers did not perceive it as their role. This may reflect Thai culture regarding interaction with others, as, in Thai society, people are hesitant to interfere with others privacy and personal matters, especially people who are not members of their family. However, the majority of them had never advised and motivated family members living in the same household with the patients to be checked. The reason given by the FM-DOT observers was that they still looked healthy, were able to work normally and did not have abnormal signs of a suspected TB infection. This finding was also supported by another study, which found that 81.4% of household TB contacts never advised or motivated other household members about TB detection (Daungkae, 1998). Some FM-DOT observers stated that an important reason for not having a TB check was

an economic problem because health check up was not free of charge. One said that “My family is not rich, I did not have enough money for health checkup and chest x-ray”. According to Kamuthamas (1998), the economic situation of the patients was the main problem for lack of household contact examination.

Furthermore, almost all of the subjects had never given advice or motivated children under 5 years of age who had never been vaccinated to receive vaccination. One of the reasons given by the FM-DOT observers was that they believed that most of the infants had been vaccinated at birth in the hospital. Which is supported by the fact that the coverage of children under one year of age by BCG vaccination in Thailand has now reached more than 90 percent (Wibulpolprasert, 2002)

### **3. The relationships between role perception and role performance of FM-DOT observers as perceived by FM-DOT observers**

According to the hypothesis of this study, there are positive relationships between role perception and role performance of FM-DOT observers. Pearson’s correlation coefficient statistics were used to answer this hypothesis. However, the result in this study showed that role perception had no significant correlation with the total role performance and four aspects of role performance. It might be due to the small sample size. The estimated number of samples in this study was determined by using power analysis. The medium effect size (.50) was used in this study because of time constraints and a limited number of assigned DOT observers. There have been no previous studies in this group before, so a small effect size was suggested (Polit & Hungler, 1999). Another

explanation might be that other related variables, such as knowledge, motivation, and attitude have influenced the role performance. The study of Nirach (1999) indicated that knowledge of preschool child development and father's role perception were positively correlated with father's role performance in preschool child care. The study of Viriyacharoenkit (1992) found that motivation had a positive significant relationship between role perception and role performance of nursing directors in community hospitals. The study of Pudthasa (2003) found that attitude and motivation had a significant correlation with overall performance of health center personnel on DOTS. These findings support Roy and Robert's conceptualization of the role function system (1981) which indicated that many factors relate to role performance not just role perception as was hypothesised in this study.

#### **4. Role perception and role performance of FM-DOT observers as perceived by people with PTB**

##### **4.1 Role perception of FM-DOT observers as perceived by people with PTB**

The results showed that the people with PTB perceived the total and subtotal role perception score at moderate level (Table 8). This may be because of a lack of information about what the role involves. It is believed that individuals with higher educational background are able to understand the disease process, accept the illness, and appraise it as a challenge to be effective (Mahat, 1997). In this study, most of people with PTB had a low educational background, which might make it difficult for them to

understand the disease process, and to accept the concept of DOT or the role of FM-DOT observers.

Another reason might be a difficulty in communication because of different languages used among health care providers, and patients and their relatives. During the interview process, the researcher found that some people with PTB could not communicate in the Thai language, particularly, patients in Yala and Pattani provinces. This problem was considered important because there was a big group of Muslim participants in this study ( 60%). Moreover, most of the TB clinic staff could not communicate in the same language with the patients.

#### 4.2 Role performance of FM-DOT observers as perceived by people with PTB

The total role performance score of FM-DOT observers as perceived by people with PTB was only at a fair level (Table 9). A possible reason for the lower score of role performance than that of their perception (role perception = moderate level, and role performance = fair level) was their dependency. After a few weeks of treatment, most symptoms disappeared and the respondents felt better, so their FM-DOT observers might think that they could perform self-care and daily living activities themselves and did not need assistance from them. On the other hand, the respondents were also concerned about spreading the disease to their family members, so they tried to stay separate, did not share a bedroom, utensils, and food at the same table as they usually did. They took anti TB drugs and marked the DOT card by themselves. Therefore, the FM-DOT observer rarely watched and recorded drug administration.

In taking medication activity, about 32% of people with PTB reported that they took the anti TB drugs by themselves without being directly observed by their FM-DOT observer, and 20% of them reported that they marked the DOT card themselves. The reason given by people with PTB, as to why they were taking the drugs and marking the DOT card by themselves was that they were able to perform this activity on their own without difficulty so it was unnecessary to have someone monitor their medication taking. Some patients said that they developed ways to remind themselves to take their medication by taking it at each meal, and storing the medication in a visible location such as at the bed side or on a desk or dining table.

#### **5. The difference of FM-DOT observers' role performance as perceived by FM-DOT observers and people with PTB**

The mean of the total score and treatment regimen support and psychosocial support subtotal scores of FM-DOT observers were significantly higher than for people with PTB (Table 10). The FM-DOT observers had been assigned to be DOT observers and have direct responsibility to provide quality care, thus they should have high expectations of themselves to perform the role of FM-DOT observer. Moreover, most of the FM-DOT observers in this study were daughters and wives who had a close relationship with the patient and were expected to assume the duties and responsibilities for a caregiving role. However, the people with PTB perceived that they could perform activities of daily living by themselves because they were still healthy. These feelings might cause different perceptions of the FM-DOT observers role. There is no known previous study of the

difference of FM-DOT observer's role performance between FM-DOT observers and people with PTB that could be compared with the results of this study.

The findings support the process of perception, Schermerhorn et al. (1982) stated that people could perceive the same situation quite differently. There are many factors that contribute to perceptual differences among people, these include characteristics of the perceiver, characteristics of the perceived, and characteristics of the situation (Schermerhorn et al., 1991).