

## CHAPTER 4

### RESULTS AND DISCUSSION

The purpose of this chapter is to present and discuss the results of the research findings. Results of this research based on the data from 126 pulmonary TB patients, 63 were successful in complying with the DOTS program and 63 participants who were unsuccessful in complying with the DOTS program.

#### Results

The results of the study are presented in the following orders:

Part 1 Characteristics of pulmonary TB patients who were successful and those who were unsuccessful in complying with the DOTS program.

Part 2 The level of family support perceived by pulmonary TB patients who were successful and those who were unsuccessful in complying with the DOTS program.

Part 3 The differences of perceived family support between pulmonary TB patients who were successful in complying with the DOTS program and those who were unsuccessful in complying with the DOTS program.

#### 1. Participants' characteristics

Table 1 shows the distribution of demographic characteristics of the participants. In the successful group the participants' ages ranged from 20 to 78 years with an average 31.0 years. More than half (57.1%) were female, ethnicities were Malay (25.3%), and most of them (84.1 %) were Muslims, thirty eight percent had

educational background at senior high school level, seventy eight percent were married, and seventy three percent of the participants stayed with a nuclear family, with family size of five persons as the most common (31.7%). Fifty five percent participants had no occupation, fifty three participants had a family income of Rp.2,000,000-3,000,000/month (equivalent to USD 219-328).

In the unsuccessful group the participants age ranged from 20 years to 72 years, with an average of 43.47 years. More than half were male (61.9%). Thirty four of the participants was Javanese, and most of them (82.5 %) were Muslims. Junior high were the majority of their education (42.8%), most of them (85.7%) were married, and seventy three percent of participants stayed with nuclear family, with family size five persons as the majority (47.6%). In term of occupation over half of them (63.4%) were private employment. Majority of the participants (69.8%) got Rp.2,000,000-3,000,000/month, equivalent to USD 219-328, (equivalent to Baht 8,000-12,000).

Table 1

*Frequency and percentage of the pulmonary TB patients who were successful (N=63), and those who were unsuccessful (N=63) in complying with the DOTS program based on their characteristics*

Characteristics	Successful		Unsuccessful	
	Frequency	Percentage	Frequency	Percentage
Age				
20-39	36	57.1	27	42.9
40-64	24	38.1	34	53.9
>65	3	4.8	2	3.2
Gender				
Male	27	42.9	39	61.9
Female	36	57.1	24	38.1

Table 1 (continued)

Characteristics	Successful		Unsuccessful	
	Frequency	Percentage	Frequency	Percentage
<b>Ethnicities</b>				
Batak	15	23.8	15	23.8
Minang	7	11.1	9	14.3
Malay	16	25.4	7	11.1
Aceh	9	14.3	8	12.7
Java	14	22.2	22	34.9
Nias	2	3.2	1	1.6
Chinese	-	-	1	1.6
<b>Religion</b>				
Islam	53	84.1	51	80.9
Christian	9	14.3	11	17.5
Catholic	1	1.6	-	-
Buddhism	-	-	1	1.6
<b>Education</b>				
No formal education	12	19.0	-	-
Elementary school	6	9.5	13	20.6
Junior high school	23	36.5	27	42.8
Senior high school	24	38.1	19	30.1
College	8	12.7	4	6.3
<b>Marital status</b>				
Single	13	20.6	8	12.7
Married	48	76.2	54	85.7
Widow	2	3.1	1	1.6
<b>Family type</b>				
Nuclear	46	73.0	46	73.0
Extended	17	26.9	17	26.1
<b>Family size</b>				
2-4 persons	12	19.0	7	11.1
5-8 persons	50	79.4	55	87.3
>9 persons	1	1.6	1	1.6
<b>Occupation</b>				
No occupation	35	55.5	16	25.4
Retirement	2	3.2	7	11.1
Private Employment	23	36.5	40	63.5
Government employee	3	4.8	-	-

Table 1 (continued)

Characteristics	Successful		Unsuccessful	
	Frequency	Percentage	Frequency	Percentage
Family income per month				
Rp.500,000-1,000,000	1	1.6	-	-
Rp.1,000,000-2,000,000	1	1.6	1	1.6
Rp.2,000,000-3,000,000	34	53.9	44	69.8
>Rp.3,000,000	27	42.8	18	28.6

Table 2 shows that twenty participants (32%) in the successful group were from Medan Johor Community Health Center, followed by Petisah Community Health Center (28%), Medan Amplas Community Health Center (27%), and Kampung Baru Community Health Center (13%). Meanwhile for unsuccessful group (44%) participants were from Medan Amplas Community Health Center, followed by Kampung Baru Community Health Center (21%), Medan Johor Community Health Center (17%), and Petisah Community Health Center (17%). All of the participants who were successful in complying with the DOTS program experienced headache followed by nausea and vomiting experienced by sixty participants and dizziness, experienced by fifty five participants. Most of the participants (96.8%), who were unsuccessful in complying with the DOTS program experienced nausea and vomiting as side effects of the treatment followed by headache experienced by sixty participants (95.2%), and dizziness experienced by fifty eight participants (92%).

Table 2

*Frequency and percentage of the participants attending community health centers and having health problems related to side effect of the treatment among successful and unsuccessful group*

Characteristics	Successful		Unsuccessful	
	Frequency	Percentage	Frequency	Percentage
Community health center				
Petisah	18	28.6	11	17.5
Medan Johor	20	31.7	11	17.5
Medan Amplas	17	26.9	28	44.2
Kampung Baru	8	12.7	13	20.6
Problem related to side effect of the medicines				
Nausea and vomiting	60	95.2	61	96.8
Fever	7	11.1	4	6.3
Emotional instability	38	60.3	48	76.2
Headache	63	100	60	95.2
Dizziness	55	87.3	58	92.1
Auditory nerveproblem	1	1.6	-	-
Diarrhea	28	44.4	24	38.1
Skin rash	36	57.1	25	39.7
Joint pain	26	41.3	47	74.6
Renal problem	2	3.2	-	-

\* Participants may experienced more than one side effect

## **2. The level of family support perceived by pulmonary TB patients**

Table 3 shows that all of the participants in the successful group received a high level of family support ( $M = 3.54$ ,  $SD = .18$ ), and the unsuccessful group as received moderate level of family support ( $M = 2.30$ ,  $SD = .20$ ). The highest score in

the successful group was emotional concern ( $M = 3.59$ ,  $SD = .17$ ), followed by aid ( $M = 3.49$ ,  $SD = .30$ ), and affirmation ( $M = 3.44$ ,  $SD = .10$ ) which were at high a level. For the unsuccessful group the highest level score was aid ( $M = 2.38$ ,  $SD = .47$ ), followed by emotional concern, ( $M = 2.33$ ,  $SD = .27$ ), and affirmation ( $M = 2.13$ ,  $SD = .21$ ) which were at a moderate level.

Table 3

*Means, standard deviations and levels of family support perceived by pulmonary TB patients who were successful and those who were unsuccessful in complying with the DOTS program*

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>Emotional Concern (Expression of caring)</b>						
1. My family help me prepare the drug packets every time on my medicine schedule	3.79	.28	High	2.88	.59	Moderate
2. My family watches me swallowing my medicine	3.79	.28	High	2.76	.47	Moderate
3. My family accompanies me to my scheduled appointment to community health center	3.79	.28	High	2.79	.50	Moderate
4. My family is with me when I consult with the health care team	3.74	.23	High	2.30	.01	Moderate
5. My family help me in activity daily living	3.63	.12	High	2.30	.01	Moderate

Table 3 (continued)

Family Support	Successful			Successful		
	Mean	SD	Level	Mean	SD	Level
<b>(Encouragement)</b>						
6. My family remind me to take my medicine	3.76	.25	High	2.55	.26	Moderate
7. My family and I eat together at meal time	3.74	.23	High	2.42	.13	Moderate
8. My family encourages me to sleep and have adequate rest, at least 8 hours per day	3.74	.23	High	2.31	.02	Moderate
9. My family encourages me to participate in social and community activities such as religious practice	3.42	-.09	High	2.15	-.14	Moderate
10. My family motivates me to have social interaction with friends and neighbors	3.47	-.04	High	2.11	-.18	Moderate
<b>(Empathy)</b>						
11. My family tells me that they love me very much even though I have TB	3.42	-.09	High	2.09	-.20	Moderate
12. My family asks me about my feelings after taking my medicine	3.39	-.12	High	2.06	-.29	Moderate
13. My family asks me about my feelings related to the change signs and symptom	3.34	-.17	High	2.06	-.29	Moderate
14. My family asks me about my feelings related to the side effects of my medicine	3.42	-.09	High	2.10	-.19	Moderate

Table 3 (continued)

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>(Empathy)</b>						
15. My family is sensitive about my emotional change	3.42	-.09	High	2.06	-.23	Moderate
<b>Aid (Service)</b>						
16. My family mark on the correct day on the DOTS card each time after observing me taking my medicine	3.80	.29	High	2.74	.45	Moderate
17. My family keeps our house clean	3.85	.34	High	2.90	.61	Moderate
18. My family helps me to prepare clean clothes and expose my linen to sunlight	3.85	.34	High	2.98	.69	Moderate
19. My family open door and windows to ventilate my room	3.87	.36	High	3.04	.75	High
20. My family provide me with nutritious food which includes the five nutrients such as rice, meat, eggs, vegetables, and fruits	3.85	.34	High	2.95	.66	Moderate
<b>(Money)</b>						
21. My family provide of thing I use in daily living	3.23	-.28	High	2.06	-.23	Moderate
22. My family support me in transportation when I control to the community health center	3.22	-.29	High	2.04	-.25	Moderate
23. My family asks me if I need something to buy	3.33	-.18	High	2.04	-.25	Moderate



Table 3 (continued)

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>(Money)</b>						
24. My family take care of thing I need in my treatment process	3.34	-.17	High	2.09	-.20	Moderate
25 My family saving some money for me to use in case of emergency	3.36	-.15	High	2.04	-.25	Moderate
<b>(Information)</b>						
26. My family tells me the cause of pulmonary TB is mycobacterium tuberculosis	3.38	-.13	High	2.03	-.26	Moderate
27. My family tells me that pulmonary TB can be transmitted from person to person through air borne transmission by droplet nuclei, when people with pulmonary tuberculosis cough, sneeze, speak, laugh or sing.	3.34	-.17	High	2.01	-.28	Moderate
28. My family tells me that pulmonary TB can be cured by taking the medication uninterrupted sixth to eight months	3.47	-.04	High	2.11	-.18	Moderate
29. My family suggest that I cough and sneeze into tissue to prevent disease transmission	3.44	-.07	High	2.12	-.17	Moderate
30. My family asks me if I experiences the side effect of the TB drugs such as nausea, vomiting and dizziness	3.46	-.05	High	2.12	-.17	Moderate

Table 3 (continued)

Family Support (Information)	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
31. My family go to Community Health Center for checking up if they have problem with they health	2.95	-.56	Moderate	2.55	.26	Moderate
<b>Affirmation (Constructive feedback)</b>						
32. My family come to me when I cough	3.30	-.21	High	2.00	-.29	Low
33. My family provide warm response and showing they concern when I have abnormal signs and symptoms such as fatigue, cough and dyspnea	3.28	-.23	High	2.06	-.23	Moderate
34. My family suggested me to cover my mouth and nose when I cough	3.41	-.10	High	2.06	-.23	Moderate
35. My family suggested me to do physical exercise such as walking regularly	3.38	-.13	High	2.87	-.42	Moderate
36. My family suggested me to watch television as a recreation	3.44	-.07	High	2.93	-.36	Moderate
<b>(Acknowledgement)</b>						
37. My family allows me to participate in decision making about my treatment	3.42	-.09	High	2.14	-.15	Moderate
38. My family and I are open about what we think about thing	3.46	-.05	High	2.19	-.10	Moderate

Table 3 (continued)

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>(Acknowledgement)</b>						
40. My family asks me if I have problems and gives me opportunity to express my grief	3.53	-.02	High	2.41	.12	Moderate
41. I think that my family feels that I am good at helping them to solve problems	3.60	-.09	High	2.31	.02	Moderate

### **3. The differences of perceived family support between pulmonary TB who were successful and those who were unsuccessful in complying with the DOTS program**

Table 4 shows the difference between family support under emotional concern dimension received by pulmonary TB patients who were successful in complying with the DOTS program and family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program. There were significant differences in all dimension of family support. The total mean score family support perceived between participants in successful group and unsuccessful group was statistically significant different ( $p < .001$ ).

Table 4

*The comparison between the mean of family support(Emotional concern dimension) received by pulmonary TB patients who are successful in complying with the DOTS program (N = 63) and the mean of family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program (N = 63)*

Family Support	Successful		Unsuccessful		Mann-Whitney	p
	Mean score	SD	Mean score	SD		
<b>Emotional Concern (Expression of caring)</b>						
1. My family helps me prepare the drug packets every time on my medicine schedule	3.79	.28	2.88	.59	-7.198	.000
2. My family watches me swallowing my medicine	3.79	.28	2.76	.47	-8.356	.000
3. My family accompanies me to my scheduled appointment to community health center	3.79	.28	2.79	.50	-8.024	.000
4. My family is with me when I consult with the health care team	3.74	.23	2.30	.01	-9.400	.000
5. My family helps me in activity daily living	3.63	.12	2.30	.01	-9.000	.000
<b>(Encouragement)</b>						
6. My family reminds me to take my medicine	3.76	.25	2.55	.26	-8.304	.000
7. My family and I eat together at meal time	3.74	.23	2.42	.13	-8.490	.000

Table 4 (continued)

Family Support	Successful		Unsuccessful		Mann-Whitney	<i>p</i>
	Mean score	SD	Mean score	SD		
<b>(Encouragement)</b>						
8. My family encourages me to sleep and have adequate rest, at least 8 hours per day	3.74	.23	2.31	.02	-8.890	.000
9. My family encourages me to participate in social and community activities such as religious practice	3.42	-.09	2.15	-.14	-9.322	.000
10. My family motivates me to have social interaction with friends and neighbors	3.47	-.04	2.11	-.18	-9.461	.000
<b>(Empathy)</b>						
11. My family tells me that they love me very much even though I have TB	3.42	-.09	2.09	-.20	-9.587	.000
12. My family asks me about my feelings after taking my medicine	3.39	-.12	2.06	-.29	-9.779	.000
13. My family asks me about my feelings related to the change signs and symptom	3.34	-.17	2.06	-.29	-9.623	.000
14. My family asks me about my feelings related to the side effects of my medicine	3.42	-.09	2.10	-.19	-9.451	.000
15. My family is sensitive about my emotional change	3.42	-.09	2.06	-.23	-9.551	.000

Table 5 shows the difference between family support under aid dimension received by pulmonary TB patients who were successful in complying with the DOTS program and family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program. There were significant differences in all dimension of family support. The total mean score family support perceived between participants in successful group and unsuccessful group was statistically significant different ( $p < .001$ ).

Table 5

*The comparison between the mean of family support (Aid dimension) received by pulmonary TB patients who are successful in complying with the DOTS program (N = 63) and the mean of family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program (N = 63)*

Family Support	Successful		Unsuccessful		Mann-Whitney	p
	Mean score	SD	Mean score	SD		
<b>Aid (Service)</b>						
1. My family marks on the correct day on the DOTS card each time after observing me taking my medicine	3.80	.29	2.74	.45	-9.785	.000
2. My family keeps our house clean	3.85	.34	2.90	.61	-7.416	.000
3. My family helps me to prepare clean clothes and expose my linen to sunlight	3.85	.34	2.98	.69	-6.854	.000

Table 5 (continued)

Family Support	Successful		Unsuccessful		Mann-Whitney	<i>p</i>
	Mean score	SD	Mean score	SD		
<b>(Service)</b>						
4. My family opens door and windows to ventilate my room	3.87	.36	3.04	.75	-6.682	.000
5. My family provides me with nutritious food which includes the five nutrients such as rice, meat, eggs, vegetables, and fruits	3.85	.34	2.95	.66	-6.743	.000
<b>(Money)</b>						
6. My family provides of thing I use in daily living	3.23	-.28	2.06	-.23	-9.732	.000
7. My family supports me in transportation when I control to the community health center	3.22	-.29	2.04	-.25	-10.064	.000
8. My family asks me if I need something to buy	3.33	-.18	2.04	-.25	-10.033	.000
9. My family takes care of thing I need in my treatment process	3.34	-.17	2.09	-.20	-9.940	.000
10. My family saves some money for me to use in case of emergency	3.36	-.15	2.04	-.25	-10.027	.000
<b>(Information)</b>						
11. My family tells me the cause of pulmonary TB is mycobacterium tuberculosis	3.38	-.13	2.03	-.26	-10.005	.000

Table 5 (continued)

Family Support  (Information)	Successful		Unsuccessful		Mann-Whitney	<i>p</i>
	Mean score	SD	Mean score	SD		
12. My family tells me that pulmonary TB can be transmitted from person to person through air borne transmission by droplet nuclei, when people with pulmonary tuberculosis cough, sneeze, speak, laugh or sing.	3.34	-.17	2.01	-.28	-9.969	.000
13. My family tells me that pulmonary TB can be cured by taking the medication uninterrupted sixth to eight months	3.47	-.04	2.11	-.18	-9.403	.000
14. My family suggests that I cough and sneeze into tissue to prevent disease transmission	3.44	-.07	2.12	-.17	-9.202	.000
15. My family asks me if I experiences the side effect of the TB drugs such as nausea, vomiting and dizziness	3.46	-.05	2.12	-.17	-9.331	.000
16. My family goes to Community Health Center for checking up if they have problem with they health	2.95	-.56	2.55	.26	-2.906	.004



Table 6 shows the difference between family support under affirmation dimension received by pulmonary TB patients who were successful in complying with the DOTS program and family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program. There were significant differences in all dimension of family support. The total mean score family support perceived between participants in successful group and unsuccessful group was statistically significant different ( $p < .001$ ).

Table 6

*The comparison between the mean of family support (affirmation dimension) received by pulmonary TB patients who are successful in complying with the DOTS program (N = 63) and the mean of family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program (N = 63)*

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>Affirmation (Constructive feedback)</b>						
1. My family come to me when I cough	3.30	-.21	High	2.00	-.29	Low
2. My family provide warm response and showing they concern when I have abnormal signs and symptoms such as fatigue, cough and dyspnea	3.28	-.23	High	2.06	-.23	Moderate
3. My family suggested me to cover my mouth and nose when I cough	3.41	-.10	High	2.06	-.23	Moderate

Table 6 (continued)

Family Support	Successful			Unsuccessful		
	Mean	SD	Level	Mean	SD	Level
<b>(Constructive feedback)</b>						
4. My family suggested me to do physical exercise such as walking regularly	3.38	-.13	High	2.87	-.42	Moderate
5. My family suggested me to watch television as a recreation	3.44	-.07	High	2.93	-.36	Moderate
<b>(Acknowledgement)</b>						
6. My family allows me to participate in decision making about my treatment	3.42	-.09	High	2.14	-.15	Moderate
7. My family and I are open about what we think about thing	3.46	-.05	2.19	-.10	-8.860	.000
8. My family is happy to hear about what I thin	3.55	-.04	2.34	.05	-7.888	.000
9. My family asks me if I have problems and gives me opportunity to express my grief	3.53	-.02	2.41	.12	-6.998	.000
10. I think that my family feels that I am good at helping them to solve problems	3.60	-.09	2.31	.02	-7.879	.000

## Discussion

Discussion of the study findings will be presented in three parts.

Part 1 Participants' characteristics.

Part 2 The level of perceived family support for pulmonary TB patients who were successful and those who were unsuccessful in complying with the DOTS program.

Part 3 The differences of perceived family support for pulmonary TB patients who were successful in complying with the DOTS program and those who were unsuccessful in complying with the DOTS program.

### **1. Participants' Characteristics**

Most of the participants in both groups were in productive age (20 years to 65 years). This data are congruent with the WHO (2005), stated that not everyone infected develops the full-blown disease, so asymptomatic, latent TB infection is most common. However, one in ten latent infections will progress to active TB disease, in productive age the pulmonary TB easier to transmitted, because in this age people have to go to work and stay in the same room with many people in the work place and they will meet many people during their daily activity. This finding is also consistent with Kiboss and Kibitok (2003) data. In their study of the re-emergence of tuberculosis among the economically productive age group in Kenya: the case of Mombasa district, they found that 97% of pulmonary TB patients were in productive age group (15 to 50 years). This condition can contribute to reduce economic status. In this productive age group people especially male as a leader in the family have to work to support the family.

In the successful group, more than half (57.1%) were females, unlike in the unsuccessful group in which more than half (61.9%) were males. This condition may be because females have a higher motivation than males to recover from their disease. This could be because women have responsibility to take care of all family members

in terms of daily activity such as of preparing food, preparing clean clothes and cleaning the house, because being a woman is closely related to mothering and this could make females more compliant to the TB treatment. The finding is consistent with the findings of Akan and colleagues (2004) in their study about gender differences in baseline hand washing compliance in the intensive care units of three Turkish hospitals. They found a statistically significant association between hand washing compliance and gender: female (33%) versus male (21%). In 2006, Babwah and colleagues, in their study about the role of gender in compliance and attendance at an outpatient clinic for type 2 diabetes mellitus in Trinidad, found that more women attended the clinic, and their compliance with the treatment regimen was better than men.

Education was also different between the two groups in this study. Nevin (2002) reported that factors influencing compliance include education. In the successful group senior high was the majority educational background (38.0%), whereas in the unsuccessful group junior high was the most common (42.8%). According to Indonesia Statistical Data (1998), the majority of Indonesians educational level were at elementary school (63%), followed by high school (33%), and tertiary degree (4 %). It was found that participants in this study were relatively well educated. This study was held in four community health center in Medan, which are located in urban areas. Patients with high education will have good understanding about what is TB, what is the cause of TB, what are the signs and symptoms of TB, how they can recover from TB. Information from the community health center will influence patients motivation to comply with treatment. This finding is supported by Deborah and Mc.Clung (2005). They studied the education, compliance and

persistence in osteoporosis patients. They found that patient education significantly improved compliance with medication.

Ethnic composition also differed between the two groups. The American Thoracic Society (2003), has reported that factors that interfere with compliance to TB treatment regimen include cultural and lifestyle differences. During the researcher's interview with participants in the community health centers, the staff of community health center reported that there were some different characteristics between Malay ethnic and Javanese ethnic participants. Malay participants were more highly motivated to recover from the TB and their understanding about TB was clearer than their of the Javanese. Malay ethnic patients also perceived more family support, and were more expressive and passionate when they talked about how their family supported them. Kaflan and colleagues (2004) studied whether race, ethnicity, and sociocultural characteristics predict noncompliance with lipid-lowering medications. They found that race/ethnicity was significantly associated with noncompliance, which noncompliance was only 2% among White Non-Hispanic subjects but 11% among Black subjects and 18% among Hispanic subjects.

In this study, participants in both groups received treatment category I, because all the participants were new cases of pulmonary TB. In successful group all of the participants experienced headache as a side effect of the medications, meanwhile in unsuccessful group, the most common side effect was nausea and vomiting, experienced by sixty one participants. The study found that two participants in the unsuccessful group did not continue taking the medications related to side effects of the medications, and the rest of them did not continue because they felt better after taking the TB medications for 1 to 2 months.

## **2. The Level of Family Support**

The highest score of family support received by pulmonary TB patients who were successful in complying with the DOTS program was emotional concern and the level was high ( $M = 3.59$ ,  $SD = .17$ ) (Table 3). The second highest score of family support received by pulmonary TB participants in the successful group was aid, and the level was high ( $M = 3.49$ ,  $SD = .30$ ), affirmation had the lowest score of family support in this group and the level was high ( $M = 3.44$ ,  $SD = .10$ ).

Participants in the successful group perceived a high level of family support because their family members supported the participants adequately, especially in terms of emotional concern (Table 3). It was found that all items under emotional concern were rated by the participants at the high level. Family supported the participant by 1) expressing their caring to the participant, such as helping the participants prepare the drug packets, watching the participant swallowing the medicines, assisting the participant within the times of consultation with the health care team and helping the participant in daily activity, 2) encouraging the participant, such as reminding the participant to take the medicines, eating together at meal times, motivating the participant to sleep and have adequate rest, motivating the participant to participate in social and community activities and motivating the participant to have social interaction with friends and neighbors, 3) empathy to the participant, such as telling the participant that family loves the participant very much, asking about the participant's feeling after taking the medicines, the participant feeling related to change in signs and symptoms and the participant's feeling related to the side effects, and the family being sensitive about the emotional change of the participant.

In terms of aid dimension, family support for the participants in the successful group was at a high level, because the patients received all items of aid support in the high level. According to the DOTS guideline, family member have to support the following aid support 1)giving the appropriate service: marking on the correct day on the DOT card after observing participant taking the medicines, keeping the house clean, preparing clean clothes and exposing the linen to sunlight, opening doors and windows to ventilate the participant room, providing the participant with nutritious foods, 2) financial support: providing things the participant used in daily living, supporting transportation, asking if participant needed anything, taking care of things the participant needed in the treatment process, saving some money for participant to use in case of emergency, 3) supporting the participant with adequate information: telling the participant the cause of TB, how the pulmonary TB can be transmitted, how the pulmonary TB could be cured, suggesting the participant cough and sneeze into tissue to prevent disease transmission, asking if the participant experienced the side effects of the medications and going to the community health center if they had a health problem.

Affirmation dimension was also perceived by participants in successful group at a high level, because of the family supported the pulmonary TB consistently by 1) showing constructive feedback, such as coming to the participant when the participant coughed, providing warm response and showing concern if the participant had abnormal signs and symptoms, suggesting the participant cover the mouth and nose when the participant coughed, suggesting to the participant to do physical activity such as walking regularly and suggesting to the participant to watch television as a recreation, 2) showing acknowledgement, such as allowing the participant to

participate in decision making about the treatment, being open to the participant about what the family thought about thing, showing that family happy to hear about what participant thought, asking the participant if the participant had problems and giving time to participant to express the participant's grief and showing that family felt that the participant was good at helping the family to solve problems.

High level of family support received makes the pulmonary TB patients develop high motivation to complying with the treatment. The patients had their relatives who showed concern and were with them all the time when they experienced signs and symptoms of pulmonary TB and when they experienced side effects of the medications and they received support consistently when they had to take the medications on the schedule and when they had to go to the community health center to consult with the health team. This data consistent with Dimatteo (2004) findings in his study of family support and patient compliance to medical treatment; he found that compliance was 1.74 times higher in patients from cohesive families and 1.53 times lower in patients from families in conflict. Marital status and living with another person (for adults) increased compliance modestly.

Participants in the unsuccessful group perceived family support at a moderate level. The highest score of family support received by pulmonary TB patients who were unsuccessful in complying with the DOTS program was aid and the level was moderate ( $M = 2.38$ ,  $SD = .47$ ), (Table 3). The second highest score of family support received by pulmonary TB participants in unsuccessful group was emotional concern, and the level was moderate ( $M = 2.33$ ,  $SD = .27$ ). Affirmation was the lowest score of family support in this group and the level was moderate ( $M = 2.13$ ,  $SD = .21$ ). The participants received all items in the moderate level and received in the total mean



score at moderate level of family support. The family support their received was not enough to motivate the participant to comply with the treatment regimen. Patel and David (2004) studied predictive factors and enhancement strategies for medication adherence; they found that family support affected to adherence behavior.

### **3. The differences of perceived family support between pulmonary TB patients who were successful and those who were unsuccessful in complying with the DOTS program**

This study has shown that perceived family support for pulmonary TB patients who were successful was statistically significant difference than that in pulmonary TB patients who were unsuccessful in complying with the DOTS program ( $p < .001$ ) (Table 4, 5, 6).

In the successful group they received a high level of family support in all dimensions of family support except for constructive feedback (item no.31, my family go to community health center for checking up if they have problem with their health, they perceived at a moderate level, meanwhile in the unsuccessful group the participants received moderate level of family support, except for aid (item no.19, my family open door and window to ventilate my room), they perceived at a high level and for affirmation (item no.32, my family come to me when I cough) they perceived at a low level.

Participants in the successful group perceived expression of caring at the highest level maybe because of the majority of the participants were female, so they perceived more emotional concern than males. This findings is supported by Okamoto and Tanaka (2004), in their study of gender differences in the relationship

between social support (emotional concern) and subjective health among elderly persons in Japan. They found that social support score was significantly higher in females than in males. Females perceived and appreciated all the activities that the family did for them especially when their family reminded them to take their medications. By contrast with male participants in the unsuccessful group, they perceived only a moderate level of emotional concern, and they appreciated more when their family helped them to prepare the drug packets every time on their medicine schedule.

All the participants in the successful group received high level of family support in the aid dimension, and the participants in the unsuccessful group received a moderate level of family support. In the successful group subject perceived that they received adequate family support, they appreciated more when the family opened doors and windows to ventilate their room, when the family helped them to prepare clean clothes and expose the linen to sunlight and also when the family provided them with nutritious food which included the five nutrients of rice, meat, eggs, vegetables and fruits. The participants in the unsuccessful group also appreciated these three items of family support but they perceived that items at a moderate level.

Affirmation scored the lowest in both groups, but the level was high in the successful group and was moderate in unsuccessful group. In this dimension participants in the successful group appreciated more when they perceived that their family felt they were good at helping the family to solve the problem, and they appreciated also when the family suggested them to watch television as recreation. On the other hand, participants in the unsuccessful group also received affirmation, but they appreciated more when the family suggested them to watch television as

recreation, and when their family suggested doing physical exercise such as walking regularly. This finding is congruent with that of the American Family Physician (2002) in a study of family support and self care compliance in diabetic type 2 patients. They found that family support was a good indicator for patients compliance and adequate family support could increase patient compliance. Schlundt and colleagues (1994) studied situational obstacles to dietary compliance for adults with diabetes, and they identified lack of family support to be one obstacles to dietary compliance in diabetes patients.