

Family Support Perceived among Pulmonary Tuberculosis (TB) Patients in Medan, Indonesia

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Abstract: Tuberculosis (TB) is an infectious disease caused by the Mycobacterium tuberculosis bacteria, which can attack various organs, especially the lungs. This disease if untreated or treatment is incomplete can cause dangerous complications to death. Family is an important factor in providing support for people with pulmonary TB. The existence of family support will increase self-confidence and motivation to deal with problems. The purpose of the study was to identify patients with pulmonary TB in the city of Medan Indonesia. In this study using a descriptive design with a study population of pulmonary TB patients in the Medan City of Indonesia and the number of research samples were 250 samples carried out by probability method with cluster sampling type. Data collection uses a questionnaire. The results of the study found that family support in emotional, informational, material, and reward aspects were classified as good. This research is expected to be the initial reference material for conducting further research related to family support for other patients.

1 INTRODUCTION

Pulmonary Tuberculosis (Pulmonary TB) is an infectious disease caused by Mycobacterium tuberculosis and commonly found in the lungs but can affect other organs. About 75% of pulmonary TB patients are the most economically productive age group. Being one of the global concerns because of the high cases of pulmonary TB can have a broad impact on the quality of life, social and economic and even threaten human life (Ministry, 2018).

Based on (WHO, 2013), TB prevalence is estimated at 169 cases per 100,000 population, the incidence of pulmonary TB is 122 cases per 100,000 population and the mortality rate is 13 cases per 100,000 population. Then the cure rate reached a target of 83.7% (minimum target of 85%) and the treatment success rate in 2013 reached a target of 90.3% (minimum target of 85%), from these data making Indonesia the 4th most country after India, China and South Africa.

Data from (Benerjee et al., 2016) contained 197,000 new cases of positive smear pulmonary TB, namely 117,000 men and 80,000 women. Then the data of Riau Provincial Health Office in 2012 the number of Pulmonary TB patients in Riau Province is still high compared to Java-Bali, which is only

160 people out of 100 thousand. Positive patients with pulmonary TB in Riau Province were 2,968 people from 5,538,367 residents of Riau Province. Targeted discovery coverage is 70%, the rate of discovery of pulmonary TB patients in new cases with Acid Resistant Basil (BTA) is positive, Case Detection Rate (CDR) for 2011 is 2,880 cases (33.9%) increased compared to 2010 (26, 6% of the cases of 2,205) and in 2007 of 2,003 cases (21.8%) (Pekanbaru, 2012). The number of Pulmonary TB patients in Sidomulyo Public Health Center with 59 cases of Pulmonary TB, with 39 smear positive smear, negative smear with 15 positive x-rays, 1 extra lung (EP) 1 person and 4 patients who relapsed soul. Sidomulyo Health Center is one of the health centres in Pekanbaru that uses the DOTS strategy (Directly Observed Treatment, Short course Chemotherapy) in tackling Pulmonary TB and is an exemplary Community Health Centre throughout the City of Pekanbaru in 2011 (Brittain, et al., 2012).

Phenomenon found in Sidomulyo Public Health Center in 2012 is the percentage proportion of pulmonary TB cure rate has only reached 33 people (84.61%) of 39 pulmonary TB patients have not reached the target of treatment success, the minimum recovery that must be achieved by the

Community Health Center is > 85 % (Celik & Yunus, 2014).

Community Lung Health Centers (BKPM) are one of the health agencies that use the DOTS strategy in tackling pulmonary TB. Based on data from BKPM Semarang, data in 2011 showed that the number of smear-positive TB patients was 550 people, 37 of them (6.7%) was relapsed patients, and in 2012 the number of smear-positive TB patients were 641 people, 39 of them (6.08%) were relapse patient (Brittain et al., 2012). In 2016, in Medan the number of new BTA + cases were 2,829 cases, compared to the new BTA + cases found in 2015 as many as 3,111 cases and in 2014 there were 3,047 cases, the number of cases decreased.

This is due to the increasing TB health services carried out by the Medan City Health Office and also through cross-sector programs that care about the incidence of TB in Medan City. According to gender in 2016, cases of BTA + in men were higher than in the case of BTA + women. Gender plays a role in determining whether a person is more susceptible to TB or not. The number of male sufferers is more likely due to mobility and higher activity than women. Moreover, smoking habits have a significant effect on the increased risk of developing TB. With these factors, men are believed to be more susceptible to exposure to TB-causing bacteria, while women and children who also contribute to the high number of those who are included in the vulnerable lifestyle are also those who are closely related to tuberculosis sufferers.

Factors that influence the risk of transmission Pulmonary tuberculosis are those who have close contact with someone who has active pulmonary tuberculosis, immunosuppressive individuals (including the elderly, patients with cancer, those on corticosteroid therapy or those who are infected with HIV), users of IV drugs and alcoholics, individuals who have pre-existing medical disorders, age and sex, malnutrition or lack of calories, protein, vitamins, iron and others that will affect a person's immune system so that they are susceptible to pulmonary tuberculosis, individuals who living in institutions (for example: long-term care facilities, psychiatric institutions, prisons, those who live in dense housing, slums and poor sanitation. Family support is the most important factor in helping individuals solve problems, family support will increase self-confidence and motivation to deal with problems and improve life satisfaction.

In this case, the family must be involved in educational programs so that families can meet the needs of patients, knowing when families should seek help and support adherence to treatment. Factors that affect the health of both individuals, groups and communities are grouped into 4, namely:

environment (including physical, social, cultural, political, economic, and so on), behaviour, health services, and offspring. These four factors in influencing health do not stand alone, but each affects each other. Environmental factors other than directly affecting health also affect behaviour, and reverse behaviour also affects the environment.

The source of transmission is a positive smear tuberculosis patient when coughing or sneezing, the patient spreads germs to the air in the form of droplets (sputum). Some factors that cause the spread of the disease are bad habits of pulmonary tuberculosis patients who spit carelessly. Family support for the elderly who have pulmonary TB disease is very important, the family can be a very influential factor in determining individual health beliefs and values. From Stuart and Sundeen (Tamher, 2009), that family support is the most important element in helping individuals solve problems. The existence of family support will increase self-confidence and motivation to deal with problems. Therefore it can be concluded that family is an important factor in providing support for routine pulmonary TB patients in their treatment.

2 METHODS

This study used a descriptive research design, which is a simple description of the phenomenon of pulmonary TB patients in Medan Indonesia. This study uses a measuring instrument in the form of a questionnaire. This study aims to identify patients with pulmonary TB in Medan, Indonesia. Research sampling technique with Probability technique. Sampling in the study using Cluster Sampling technique. This study was conducted on the elderly population suffering from pulmonary TB in Medan, Indonesia. The number of samples was 250 samples.

3 RESULT

Table 1: Characteristic Frequency Distribution in Patients with Pulmonary TB in Medan City, Indonesia

Characteristic	f	%
Genre		
Man	163	65,2
Woman	87	34,8
Religion		
Muslim	211	84,4
Chatolic	8	3,2
Protestant	24	9,6

Buddhist	3	1,2
Hindu	4	1,6
Ethnic		
Mandailing	108	43,2
Javanese	89	35,6
Batak Toba	31	12,4
Batak Karo	6	2,4
Tionghoa	3	1,2
Nias	2	0,8
Aceh	7	2,8
Tamil	4	1,6
Education		
Elementary School	84	33,6
Secondary School	101	40,4
High School	52	20,8
Bachelor	13	5,2

From the table above, the results of demographic data were the majority of male sex as many as 163 respondents (65.2%). The majority of respondents were Islam, namely 211 respondents (84.4%). Most tribes are the Mandailing tribe, which were 108 respondents (43.2%). Then the final education of the average respondent in this study was secondary school, as many as 101 respondents (40.4%).

Table 2. Distribution of Frequency of Family Support for Pulmonary TB Patients in Medan, Indonesia

Family Support	f	%
Good	157	62,8
Enough	52	20,8
Slump	41	16,4

From the table above, the results of the frequency distribution of family support for pulmonary TB patients in Medan, Indonesia are good as many as 157 respondents (62.8%).

Table3. Frequency Distribution of Emotional Family Support in Pulmonary TB Patients in Medan City

Family Support	f	%
Good	198	79,2
Enough	43	17,2
Slump	9	3,6

From the table above, we found the results of the frequency distribution of emotional family support for pulmonary TB patients in the city of Medan, namely as many as 198 respondents (79.2%).

Table 4. Distribution of Frequency of Informational Family Support in Pulmonary TB Patients in Medan City

Family support	f	%
Good	142	56,8
Enough	42	16,8
Slump	66	26,4

From the table above, we get the results of the frequency distribution of informational family support for pulmonary TB patients in the city of Medan, that is as good as 142 respondents (56.8%).

Table 5. Frequency Distribution Family Support Award for Pulmonary TB Patients in Medan City

Family Support	f	%
Good	126	50,4
Enough	73	29,2
Slump	51	20,4

From the table above, the results of this study were related to the frequency distribution data of family support awards for pulmonary TB patients in Medan, namely 126 respondents (50.4%).

4 DISCUSSION

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, which can attack various organs, especially the lungs. If this disease is not treated completely can cause dangerous complications even cause death. TB is estimated has been existed in the world since 5000 BC, but the progress in the discovery and control of TB has only occurred in the last two centuries. The main symptoms of pulmonary TB are a cough with phlegm for two weeks or more, additional symptoms of sputum mixed with blood (coughing up blood), shortness of breath, weakness, malaise, decreased appetite, weight loss, dry at night without physical activity, fever more than one month. In extra-pulmonary TB, symptoms, and complaints depend on the affected organ, such as neck stiffness on tuberculous meningitis, chest pain in pleural TB (pleuritic), superficial lymph node enlargement in tuberculous lymphadenitis and spinal deformity (gibbous) in tuberculous spondylitis and others - others.

Tuberculosis is a direct infectious disease caused by Mycobacterium Tuberculosis TB transmission method.

- a. The source of transmission is a positive smear TB patients through sputum released. However, that does not mean that TB patients with negative smear examination results do not contain germs in their sputum. This could have happened because the number of germs contained in the test sample was 5.000 out of 5,000 sputum/cc so that it was difficult to detect through direct microscopic examination.
- b. TB patients with negative smear also still have the possibility of transmitting TB. The rate of transmission of positive smear TB patients was 65%, negative smear TB patients with positive culture results were 26% while TB patients with negative culture results and positive thorax photos were 17%.
- c. The infection will occur if other people breathe air containing the infectious sputum.
- d. When coughing or sneezing, patients spread germs into the air in the form of sputum (droplet nuclei). Once a cough can produce about 3000 sputum (Dinas, 216).

Risk of transmission

- a. The risk of contracting depends on the level of exposure with sputum. Pulmonary TB patients with positive smear give a risk possibility Transmission is greater than pulmonary TB patients with a negative smear.
- b. The risk of transmission every year is indicated by the Annual Risk of Tuberculosis Infection (ARTI), which is the proportion of the population at risk of TB infection for one year. ARTI is 1%, meaning that 10 (ten) people out of 1000 people are infected every year.
- c. ARTI in Indonesia varies between 1-3%.
- d. TB infection is proven by the change in the negative tuberculin reaction to positive (Gleeson et al., 2016).

Conditions in the home environment can show that the average home condition of research subjects has not met the requirements of a healthy home and is very risky for the occurrence of pulmonary tuberculosis, because based on the results of observations or measurements it is known that the condition of some research subjects' homes is in risky conditions, because:

- a. Some of the residential densities of research subjects did not meet the requirements.

- b. The average room temperature is 32.11 0C so it is said to not meet the requirements of a healthy home, this is because research subjects rarely open the windows of the house every day, and some tiles do not use glass tiles, so that sunlight does not enter the house.
- c. The average lighting is 21.7 lux, so it is said that it does not meet the requirements of a healthy home, it is affected because the research subjects do not open the house window every day, and the location of the vent is not strategic so that sunlight cannot enter the house (Li & Ke, 2017).

There are several tips to help maintain and prevent TB disease to friends and family from germ infections: Stay at home. Don't go to work or school or sleep in a room with someone else for the first few weeks of treatment for active TB

- a. Ventilate the room. TB germs spread more easily in small enclosed spaces where the air is not moving.
- b. If the room ventilation is still lacking, open the window and use a fan to blow air in the room outside.
- c. Shut up using a mask. Use a mask to cover your mouth at any time, this is a step to prevent TB effectively. Do not forget to remove masks regularly.
- d. Spit should be in a certain place that has been given disinfectant (soapy water).
- e. BCG immunization is given to infants aged 3-14 months.
- f. Avoid cold air.
- g. Try sunlight and fresh air to enter enough into the bed.
- h. Drying mattresses, pillows, and beds especially in the morning.
- i. All items used by the patient must be separated as well as washing and should not be used by others.
- j. Foods must be high in carbohydrates and high in protein.

Family support

- a. Family Definition
The family is an association of two or more individuals who are bound by blood relations, marriage, or adoption, and each family member always interacts with each other.
- b. Family support
Family support is the attitude, actions, and acceptance of the family towards the family members who are supportive always ready to

give help and assistance if needed. In this case, the family support recipient will know that there are other people who pay attention, respect and love him

- c. Form family support families have several types of support, namely:
1. Instrumental support namely the family is a source of practical and concrete help.
 2. Information support is the family functions as a collector and disseminator (the cause of information).
 3. Assessment support is the family acting as feedback, guiding and mediating problem-solving and as a source and validator of family identity.
 4. Emotional support is as a safe and peaceful place for rest and recovery and helps mastery of emotions.
 5. Financial support, financial stress usually affects the family system and results in the destruction of the family.
 6. Spiritual support, in fact, trust in God and prayer are identified by the family as the most important cam for the family to overcome a thing (American, 2017).

Family role

The role of the family describes a set of interpersonal behaviour, traits, activities related to individuals in certain positions and situations. The role of individuals in the family is based on the expectations and patterns of behaviour of families, groups, and communities. One of the roles of the family is to form other family members while facing health problems.

Family Function.

In a family there are several family functions that can be run, namely:

- a. Biological function is a function to carry on offspring, nurture, and raise children, and fulfil family nutrition needs.
- b. The psychological function is to provide love and a sense of security for the family, giving attention to the family, giving maturity to the personality of family members, and giving identity to the family
- c. The function of socialization is to foster socialization with children, establish behavioural norms according to their respective levels of development and carry on cultural values
- d. The function of socialization is a function that develops the process of interaction in the family that starts from birth and the family is an individual place to learn to socialize

- e. The economic function is to look for sources of income to meet current family needs and save to meet the needs of the family in the future
- f. The economic function is a family function to meet the needs of all family members including clothing, food, and shelter
- g. The function of education is to send children to provide knowledge, skills, shape children's behaviour in accordance with their talents and interests, prepare children for an adult life that will come in fulfilling their role as adults and educating children according to their level of development (David, 2008).

Family support, emotional support, informational support, and appreciation support:

1. Family support for patients with pulmonary TB in Medan City, Indonesia. In this study, it was found that family support for pulmonary TB patients was good (62.8%). Family support is an encouragement, motivation, encouragement, and advice that comes from family members in the home that build one's character. Family support can be obtained through verbal or nonverbal. The majority of the sexes in this study were men where men usually became leaders in a family, so when they fell ill they were very much cared for by the family. Family support is also influenced by economic and social and environmental factors. Family support is very important when a person is affected by illness because family support provided can prevent the development of problems due to the pressure faced. Family support plays an important role in making good interpersonal relationships. In TB patients require iron supplementation to prevent anaemia, in general, TB patients suffer from anaemia (Dolan et al., 2006). Perceived benefits, perceived barriers and family support related to adherence to iron supplementation; thus, developing a good perception and family support must be promoted well. Patients with pulmonary TB experience stress during the treatment process, therefore pulmonary TB sufferers need more support from the family in the form of social support, family competence, and adequate family resources (Sangian et al., 2017). Social support, family competency, and family resource adequacy have a direct effect on parenting stress in the family and, the adequacy of family resources mediates and moderates the influence of social support and family competencies in parenting stress.

2. Emotional family support for pulmonary TB sufferers in this study, it was found that emotional family support in pulmonary TB patients was good (79.2%). Emotional family support is the presence of emotions, feelings in providing support to families such as giving praise, strengthening families who are experiencing problems such as illness or accident. Emotional support includes expressions of empathy, care and attention of the people concerned to family members who experience health problems such as feedback and affirmation from family members. Emotional family support serves as a place to restore feelings and help in mastering emotions. In the study of good emotional family support supported by the respondent's family related to pulmonary TB sufferers due to good family relationships and also the good support given by the family in the family. Family support related to health problems is proven to increase satisfaction for sufferers in aspects of provider decisions and compliance during the treatment process (Sianturi, 2014). Based on the results of the study, practitioners must regularly assess family support and CRC beliefs with African-American patients. This can increase satisfaction sharing patient-provider decisions and compliance with CRC screening among African American patients. In patients with TB often need moral support from the family because TB patients experience routine treatment for 6 months accompanied by medication side effects (Sumantra, 2017). In Studies 1a and 1b, we find that individuals who engage in prior moral actions provide less family support than those who were not involved in previous moral actions. In Study 2, we found that the indirect effects of engaging in previous moral actions on providing family support as mediated by individual counterfactual thinking were observed only when situational severity was low (Triharini et al., 2018). There is a connection between Family Emotional Support and Self-Acceptance in the Elderly in the village of Watutumou III. Based on data obtained through research on 60 respondents showed that respondents who had good family emotional support amounted to 33 respondents with a percentage of 55%.
3. Informational family support for pulmonary TB sufferers in Medan, Indonesia In this study, the results of informational family support in pulmonary TB patients were good (56.8%). Informational family support in the form of families always provides information related to something either about health or other general matters. In the family exchanging information is very important and reasonable to do because then the communication between family members can run well so that the relationship between family members is also good. Therefore, it will affect when there is one family member who is sick or afflicted by a disaster, the other family members will care about the family members who are affected by the disease or the disaster. Informational family support is a collection of advice, advice, guidance and providing information that is useful to suppress stressors. Although in this study the majority of respondents' last education was a junior high school the respondents had good family support and good family communication so that the informational family support could be well established. Information support from families related to the compliance of pulmonary TB patients in consuming drugs that must be consumed routinely by pulmonary TB sufferers for 6 months (Sumantra et al., 2017). Good family informative support with medication adherence in elderly hypertension as many as 29 respondents (72.5%). Informative family support that is the Family functions as a collector and disseminator of information on the emergence of a stressor because the information provided can contribute to suggestions that are specific to individuals. The aspects of this support are advice, suggestions, instructions and information.
4. Family support Material for pulmonary TB sufferers in Medan City, Indonesia In this study, the results of maternal family support in pulmonary TB patients were good (60.8%). Material family support can be in the form of providing facilities for families such as when the family is sick and will be taken to the nearest health service. In this study, a family support obtained from respondents is therefore good for material family support, where families are very sensitive and help each other and meet the needs of other family members when other family members are affected or ill. Family support in the form of competency-based education and training support in the form of the use of more modern technology can make it easier to connect and get patients even non-family members (Behera, 2010). The use of digital technology has revolutionized and shaped the modern world. The use of cellular-based applications can help parents to develop their knowledge and beliefs. Cameras and videos can help parents to keep in touch with vulnerable babies even when they are not next

to their loved ones. Family economic status can increase the family support provided by families to TB sufferers (Nasution, 2007). Researchers described that living with biological parents, parents' level of education, high family income levels and having a disabled sibling increased the perceived family support score. Therefore, it is estimated that supporting and strengthening these individuals in terms of these characteristics can increase the level of perceived family support.

5. Family support Award for pulmonary TB sufferers in Medan City, Indonesia In this study, the results of family support were obtained in the form of rewards for pulmonary TB patients, namely good (50.4%). Where family support can be in the form of praise, reward, and encouragement. Family support awards can act as feedback guidance, guide and influence problem-solving. This support can be realized through expressions of respect or providing positive reinforcement for the family. Award support is generally given by the family in the form of attitudes and attention. In this study, the majority of respondent religions are Islam, where in Islam itself it is recommended to strengthen and help one another when one of the other Muslims is facing a problem.

5 CONCLUSIONS

The results of this study found that family support in emotional, informational, material, and reward aspects was classified as good. Whereas a whole the family plays a role in supporting during the healing and recovery process of the patient. Most families in Medan, Indonesia have good family support this is allegedly due to the relationship of a family caring very much about each other.

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