ORIGINAL RESEARCH

Integration of the Roles of Medical Students and Health Workers in Combating Pulmonary Tuberculosis

INTEGRATION OF THE ROLE OF MEDICAL STUDENTS AND HEALTH WORKERS IN COMBATING PULMONARY TUBERCULOSIS IN NORTH ACEH DISTRICT

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Abstract: Pulmonary tuberculosis is a health problem that occurs in almost all countries in the world, including Indonesia. Therefore, in overcoming it, the participation of various elements of society is needed.

Purpose: This study aims to create an integrated role for medical students and health workers in the prevention of tuberculosis in the North Aceh Regency.

Patients and methods: This study is a qualitative study using a Participatory Action Research design. The number of informants involved consisted of 30 people with TB, 20 medical students, and 4 health workers. Data collection was carried out through in-depth interviews, recording and measurement, and observation of documentation.

Results: The results showed that medical assistance by medical students and health workers has increased patient adherence to treatment by 90 percent and the success of TB treatment has also increased by 90 percent.

Conclusion: The integration of the role of medical students and health workers can increase the level of adherence and treatment success in pulmonary tuberculosis patients in the North Aceh District.

Keywords: pulmonary tuberculosis, medical students, health workers

Introduction

Tuberculosis (TB) is a dangerous and emergency infectious disease in the world, including in Indonesia. Countries with high cases of tuberculosis, generally occur in countries with a very high population, and with low socioeconomic conditions of the people. In countries with a high number of tuberculosis cases, this is also exacerbated by the high number of HIV cases. The condition of patients with HIV disease which weakens the immune system is increasingly likely to be infected with tuberculosis (1) . The World Health Organization (WHO) states that Tuberculosis is included in the 10 leading causes of death from one infectious agent (above HIV / AIDS) (2) . The high mortality in cases of tuberculosis infection can be caused by patient non-compliance with treatment, so that Mycobacterium tuberculosis that infects the lungs continues to damage lung tissue which causes various complications so that the patient's condition gets worse which leads to death (3) . The number

of tuberculosis infectious diseases is currently quite high when compared to other infectious diseases, plus the treatment process for this disease is very long so the mortality rate is also high compared to other infectious diseases (4) .

The number of new cases of pulmonary TB in Aceh is increasing every year. The findings of TB cases in 2015 were found to be 4023 cases, in 2017 there were 7235 cases and in 2018 there were 8471 cases (5) . North Aceh Regency is the largest contributor to TB patients in Aceh with 1247 cases and a Case Detection Rate (CDR) of 48 percent. The incidence of TB in Aceh Utara District reached 451 cases per 100,000 population and those undergoing treatment at health facilities were only 27 percent of the total incidence (121.77 patients). While the success rate for pulmonary TB treatment has not yet met the national target (90 percent), the success rate for TB treatment in Aceh is 79.3 percent (6) .

It takes the involvement of many parties in the process of controlling pulmonary TB at the district, provincial and state levels. One element of society that can take a role to be involved in TB control is medical students. Medical students with their knowledge have a very high bargaining position to solve Indonesian public health problems. The potential roles that these students have can be directly applied since they are still in college. There are 3 important roles where students can contribute to health problems, namely agent of health, agent of change, and agent of development (7) . Students as agents of health are at the forefront of conducting good interactions with the community, which aims to increase their awareness of health. Students have very broad access to the health sector which makes it easier for them to play their role in raising public awareness of the importance of health. Therefore, in this study ,the researchers tried to create the role of medical students in TB control that synergizes with the role of health workers, so as to increase the success of TB treatment

by conducting home visits to monitor and provide assistance in the treatment process and identify problems that arise in TB patients. during the treatment period.

Materials and methods

The type of research used is qualitative with a Participatory Action Research (PAR) design and uses Kurt Lewin's research flow. The interventions provided are actions that are produced and agreed upon with the participants in the PAR process. Data were collected through in-depth interviews to find the problems experienced by TB patients in treatment, then intervention was carried out on selected TB patients. Participants in this research activity were divided into two parts. Participants in the first part were patients with pulmonary TB and their families. Pulmonary TB patients are new cases of pulmonary TB patients who will undergo TB treatment for 6 months or new cases of pulmonary TB patients who have undergone treatment for at least 1 month totaling 30 people. Participants in the second part were medical students and health workers. The students involved as participants were medical students who were following the senior clinical clerkship (KKS) or Co-assistant (COAS) in the FOME and IKM sections as many as 20 people. The data obtained were analyzed thematically using atlas.ti software. Data analysis used the Miles and Huberman path. The analysis is preceded by the process of compiling data transcripts, data reduction, data presentation, and drawing conclusions. Analysis of TB treatment monitoring data included: problems experienced, AFB, subjective complaints, weight or nutrition monitoring, blood pressure, blood sugar levels, drug availability, drug dosage accuracy. The initial stage is to analyze univariate data in the form of monitoring TB treatment before and after the intervention or action on the results of PAR is carried out. The analysis includes changes in indicators of TB treatment success before and after the action is carried out.

Results

Stage 1. Planning. At this stage, indept interviews were conducted with participants and 4 themes related to tuberculosis control were obtained, namely: 1) The number of TB cases increased. In this theme there are two sub-themes, namely: case finding and patients who do not comply with repeated treatment. 2) The impact of TB disease. It has two sub-themes, namely: psychological effects and drug side effects. 3) Treatment support for TB patients. In this theme there are six sub-themes, namely: support for health workers, family support, support for health services and empowerment of medical students. 4) Barriers to TB treatment. In this theme, there are seven sub-themes, namely: low knowledge of TB patients, long distance from place of residence, patients experiencing malnutrition, PMO, comorbid diseases and bad behavior of TB patients.

Stage 2. Action. At this stage, identification of the problems experienced by TB patients in undergoing treatment is carried out as shown in the table below:

Table 1Identification of problems experienced by TB patients

Problem	Total (n=30)	Percentage
Family support		
- Yes	22	73.3
- No	8	26.7
Comorbid disease		
- Yes	16	53.3
- No	14	46.7
Smoking behavior		
- Smoking history	15	50
- Still smoking	6	20
- Do not smoke	9	30
Drug use		
- Yes	1	3.3
	29	96.7

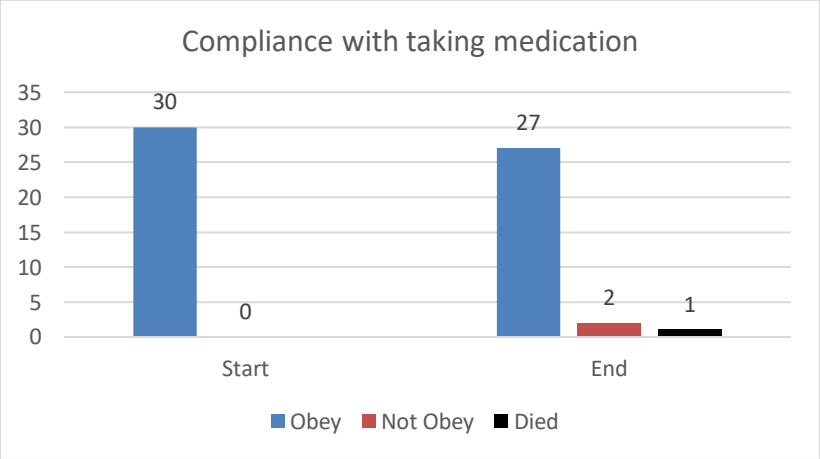
- Not		
Availability of means of transportation (privately owned)	20	66.7
- Yes	10	33.3
- No		
Education about TB		
- Ever received education and obedient	9	30.0
- Ever received education but did not obey	7	23.3
- Have you ever received education but forgot/don't understand?	14	46.7
Knowledge about TB and efforts to prevent transmission		
- Know	20	66.7
- Don't know	10	33.3

Table 2 Identification of initial data to be measured during mentoring

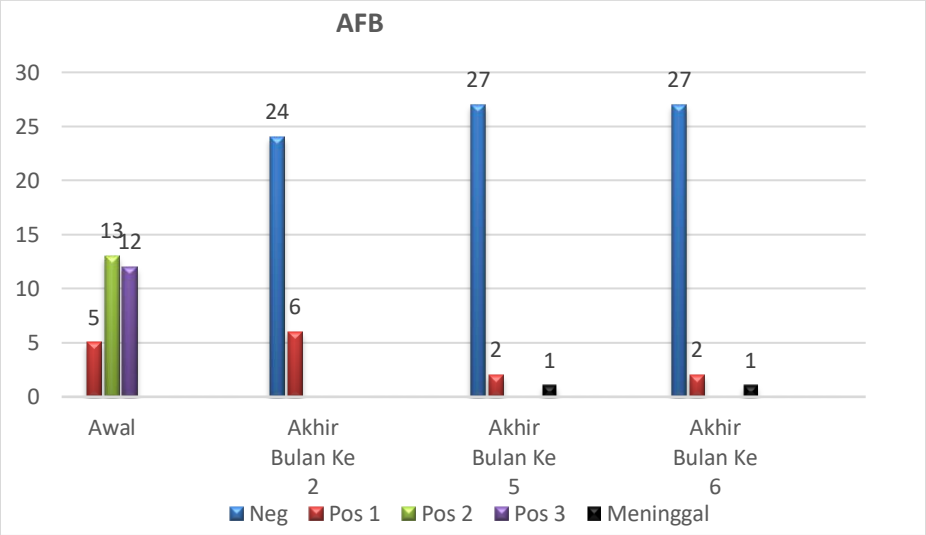
Identification	Amount	Percentage
AFB		
- Positive 1	5	16.7
- Positive 2	13	43.3
- Positive 3	12	40.0
Availability of drugs		
- Available	30	100
- Not available	0	0
Dosage accuracy		
- Suitable	30	100
- Not Suitable	0	0
Complaint		
- Cough	30	100
- Feeling thinner	10	33.3
- Nauseous vomit		
- Weak	13	43.3
	18	60

- No appetite	11	36.7
- Congested	3	10
BMI		
- Normal	11	36.7
- Thin	19	63.3
Blood pressure		
- Normal	26	86.7
- Hypertension	4	13.3
KGD		
- Normal	22	73.3
- Hyperglycemia	8	26.7

Stage 3. Observation. Observations of participants were carried out through monitoring the implementation of activities. Monitoring of adherence to treatment undertaken by TB patients for six months of assistance is as shown in the graph below:



In accordance with the TB treatment process, as long as the patient is undergoing treatment, a repeat AFB examination will be carried out at the end of the second month, the end of the fifth month and the end of the sixth month. The results of these tests are shown in the graph below:



Stage 4. Reflection. Overcoming pulmonary tuberculosis carried out by medical students and health workers has provided benefits in the form of increasing treatment adherence and treatment success as seen from the results of negative smear conversion by 90 percent. The acceptance of pulmonary TB patients for assistance from outside parties other than their own families is an entry point to improve treatment adherence and treatment success. The assistance provided by medical students has greatly helped TB sufferers in undergoing the treatment process to completion. The presence of medical students who continuously monitor treatment and provide education has succeeded in increasing the adherence of TB patients to taking OAT to achieve recovery at the end of treatment.

Discussion

The number of TB cases found tends to increase, new case findings are obtained from the activeness of health workers in conducting contact investigations and from the awareness of the community themselves in seeking treatment when they are aware of the health problems they are experiencing. Treatment seeking behavior is all actions or efforts taken by individuals with the aim of finding the right medicine when they feel or think they have a health problem. According to Trisnawan, treatment seeking behavior is preceded by a decision-making process which is then regulated by individuals, household behavior, community norms, and expectations of health care providers (8) .

According to the Director General of P2P of the Indonesian Ministry of Health, contact investigation is an activity carried out to improve TB case finding by detecting early and systematically people who are in contact with sources of TB infection (9) . Contact investigation is a form of perceived susceptibility in the HBM theory, where TB disease is an infectious disease that has susceptibility or has the potential to be transmitted to the closest people or people who are in contact with the sufferer. The implementation of TB contact investigations that have not run optimally can be caused by the lack of TB program planning so that there is no special budget for carrying out contact investigations (10) .

Pulmonary TB disease experienced by sufferers has a significant impact on the sufferer, not only having a psychological impact because they must seek treatment with a treatment period of months but also have a social impact on the sufferer. While suffering from TB, many of them are no longer working, so that the fulfillment of their family's economic needs is limited. Wulan stated that TB illness had an impact on decreasing the level of patient welfare, this was indicated by changes in income before and after TB illness, causing households to reallocate consumption, as well as

impoverishment in households. Changes in household income lead to an increase in the low income group in the community (11) .

In addition to having an impact on the socio-economic condition of the patient, TB can also have an impact on the psychological condition. Psychological impacts that arise in patients can be caused by side effects of physical treatment which can cause a decrease in work productivity, so that pulmonary TB sufferers only add to the family burden. The results of the research by Febi, Manu, Mogapatra, Praharaj, and Guddattu stated that pulmonary TB disease not only causes physical effects but also causes psychological effects such as stress, disappointment, anxiety, confusion, regret, and increased emotions. The psychological impact caused by the disease and treatment of pulmonary TB can hinder the success of pulmonary TB treatment (12) .

Psychological problems in the form of stress that are not handled properly can cause TB patients to easily despair, feel helpless, angry, anxious, think negatively, and some even blame God. This condition can result in pulmonary TB patients not regularly taking medication and even dropping out of medication, so that later it will affect the quality of life. Other psychosocial problems are stigma in society, fear of an incurable disease, feeling isolated, and insecure, as well as economic problems (13) .

According to Hasudungan and Wulandari, the stigma that exists in tuberculosis can have a negative impact on the continuity of treatment, causing delays in treatment for TB patients. Stigma is often attached to health problems, especially tuberculosis. The reason for the emergence of stigma on TB is because of its transmission, inaccurate knowledge of its causes, treatment or association with certain groups such as economic levels, racial minorities, sex workers, prison prisoners, and people infected with HIV/AIDS. Stigma is very influential in the pulmonary tuberculosis treatment program (14) . According to Endria and Yona, the main problems in the treatment of pulmonary

tuberculosis are delays in treatment and discontinuation of treatment. One of the causes of this problem is the emergence of a stigma that makes pulmonary tuberculosis patients avoid treatment. The success of pulmonary TB treatment really needs support from various parties. Among the supports that can be utilized are the support of health workers, family support, social support of community leaders, support for health services and empowerment of medical students (15) .

Family support is an attitude of action and family acceptance of supportive family members who are always ready to provide help and assistance if needed. The family is the smallest unit of society consisting of the head of the family and several people who gather and live from one roof in a state of interdependence. The role of family support will influence the patient's decision to complete treatment or not. Some patients who experience side effects from anti-tuberculosis drugs decide to stop treatment. The role of family support as PMO can empower TB patients during the treatment period by providing continuous support such as reminding patients to take medication regularly. The role of the family apart from being a PMO is also needed to provide support for TB patients, namely by showing concern, sympathy and caring for patients (16) .

Research by Pramudian, Romadhon, Faradhisa, and Dewi stated that there was a significant relationship between family support factors and the success of treatment for pulmonary TB patients (17) . Family support can be in the form of social support, instrumental support, information support, and assessment support in the form of guidance to sufferers. Good family support will make pulmonary TB patients obedient in carrying out treatment. Compliance with treatment of TB patients will influence increasing the success rate of treatment of TB patients. In addition, it also influences reducing treatment failure in pulmonary TB patients and decreasing the incidence of TB treatment resistance. Sugiono's research; Herawati, Abdurakhman and Rundamintasih stated that there was a significant relationship between the support of health workers and adherence to taking medication in

TB patients (18) (19) . The role of health workers has an important role in improving the quality of maximum health services to the community, so it is very helpful for improving the healing process in patients with pulmonary TB, especially adherence to taking pulmonary TB drugs.

Prevention and treatment of tuberculosis is not an easy thing to do, there are many obstacles encountered in its implementation. Based on the Health Belief Model Theory, perceived barriers are an assessment of the barriers encountered in the treatment of tuberculosis. Among these obstacles are the low knowledge of TB sufferers and their families, the distance from which patients live far from the health service center, problems of malnutrition, PMO, comorbid diseases, bad behavior of patients and the role of health center doctors who are still not optimal.

Increasing TB partnerships is carried out by empowering medical students who are at the professional stage, thereby forming new partners in TB control from educational institutions. This strengthening indirectly also affects the national strategy in the aspect of strengthening the control of risk factors. This happens because the actions taken by medical students are in the form of helping patients, monitoring treatment and providing education which also includes efforts to control risk factors in TB patients. Based on observations made in the field, the assistance carried out by medical students and health workers during the patient's treatment period until completion showed very positive results on treatment adherence in TB patients. The attention and support that TB sufferers get from people who become role models around them fosters the patient's enthusiasm to recover. Research conducted by Ariyanto, Baroya, and Wati shows that the role of people who become role models such as religious leaders is a component that is considered to have a lot of influence on TB control efforts through the process of screening suspects and efforts to socialize TB prevention. (20)

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Meanwhile, in the assistance provided by medical students, TB sufferers feel there is a place to ask questions directly when they need information related to their illness, there is a place for them to complain when experiencing uncomfortable physical conditions during treatment without having to go to the Puskesmas first but are regularly visited by students to their homes. Overall, the success of treatment for TB patients reached 90 percent after being provided with assistance by medical students and health workers. The assistance provided by medical students did not experience any obstacles at all. Medical students carry out their duties according to a pre-agreed agreement. This is a form of discipline shown by students, as a form of professionalism that must be possessed by a prospective doctor. Medical students can already show empathy and feel responsible for TB sufferers. In addition, the implementation of home visits by students is an activity that is required by the campus, because home visits are one of the conditions for activities that must be carried out when students are stationed/coasted in the IKM and FOME sections.

Conclusion

Problems in overcoming pulmonary TB include medication adherence and low treatment success, the presence of comorbid diseases, poor patient behavior, nutritional problems and poor patient knowledge of TB that affect the success of treatment. Identification of problems with TB sufferers produces themes that are possible determinants for TB control, namely the increasing number of TB cases, the impact of TB disease, treatment support for TB patients, and barriers to TB treatment.

The role of medical students in TB control is to participate in action in mentoring by monitoring treatment and providing education. The integration of roles between medical students and

health workers supports the success of the TB control program by increasing patient compliance in treatment and the success of treatment as seen from the negative smear test results to 90 percent.

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Abbreviations:

TB. Tuberculosis

WHO. World Health Organization

Figure 1: Measuring blood pressure of TB patients

Figure 2: Providing education.

Figure 3: Positive place for mosquito larvae.