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RISK PREVENTION MODEL OF PULMONARY TUBERCULOSIS INCIDENCE: A QUALITATIVE STUDY

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Abstract

The success of treating pulmonary tuberculosis patients does not only rely on taking medicines, but also considering the factors supporting and inhibiting the recovery process of TB. The fundamental effort that has not been conducted but it can support the pulmonary tuberculosis preventive program is to apply inter-disciplinary collaboration between healthcare

profession and religious leaders.

The objective of this study is to create an inter-disciplinary collaborative model between healthcare profession and religious leaders in preventing pulmonary tuberculosis by involving experts of environmental health, nutrition, health promotion and religious leaders. This was qualitative research with data collection methods using in-depth interview and Focus Group Discussion (FGD). The informants were TB patients, TB volunteers, TB officers, nutrition officers, environmental health officers, health promotion officers, religious leaders and the head of Community Health Center.

The study resulted in a TB prevention model in Makassar by maximizing the collaborative role of the officers of TB, nutrition, environmental health, health promotion in the form of counseling and religious leaders. Every TB patient who takes medication at the community health center must receive counseling about healthy home environment by health workers, nutrition that TB patients need to accelerate recovery by nutrition officers, healthy lifestyle by health promotion officers and psychological health to reduce stress by religious leaders.

The resulting model is a flip chart about healthy home environment, nutrition needed by TB patients, hygiene lifestyle and types of dhikr to reduce stress. This model is in the form of guidelines for officers in providing counseling to TB patients and guidelines for TB patients at home in accelerating their recovery process.

Keywords: model, collaboration, prevention, tuberculosis

INTRODUCTION

Tuberculosis is a direct contagious disease caused by *Mycobacterium Tuberculosis*. Most of the mycobacterium tuberculosis attack the lungs, but it can also attack other organs¹. If someone has been exposed to the bacteria that causes tuberculosis, it will give bad impacts such as reducing work performance or productivity, transmitting the disease to other people, especially family members living at home, and causing fatality.^{2,3}

Pulmonary tuberculosis does not only cause losses from health aspect, but also from the socio-economic aspect. Therefore, it is a threat to the ideals of development in improving the overall community welfare⁴. Accordingly, the war against pulmonary tuberculosis means a war

against poverty, unproductivity and weakness due to tuberculosis.

The number of new positive TB cases in Makassar shows a fluctuating number. In 2016 there were 1,928 cases then decreased in 2017 to 1,850 cases and in 2018 it increased to 1,951 cases. Meanwhile, pulmonary TB recovery rates that follow the treatment program (Direct Observation Treatment Short Course (DOTS)) has not been optimized yet. It can be seen that in 2016, the recovery rate was 73.09%, in 2017 it increased to 75% and in 2018 it decreased by 67.94%.^{5,6,7}

Makassar city is a coastal area that is vulnerable to the increasing number of environmental-based infectious diseases, including tuberculosis (TB). In addition to

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environmental changes, a number of factors also cause the pulmonary TB incidence, including high density, poverty, hygiene lifestyle and poor environmental condition.^{8,9}

To support the success of pulmonary tuberculosis treatment, it does not only rely on taking medicines, but also considering the factors supporting and inhibiting the recovery process of TB. The factors that support and inhibit the recovery process of TB are: age, home environment, nutritional status, healthy lifestyle and psychological factors.^{10,11,12,13} Based on the research problem, an inter-disciplinary collaborative model between healthcare profession and religious leaders in preventing pulmonary tuberculosis by involving experts of environmental health, nutrition, health promotion and religious leaders is needed.

RESEARCH METHOD

This was a qualitative research using the following stages: first stage: conducting in-depth interviews about TB prevention model at the community health center with nutrition officers, environmental healthcare officers, TB officers, health promotion officers, TB volunteers and representatives of TB patient. Second stage: conducting a Focus Group Discussion (FGD) to formulate TB prevention model in Makassar which involves the Head of Community Health Center, nutrition officers, environmental healthcare officers, TB officers, health promotion officers and religious leaders. Third stage: promoting the model to related parties. Fourth stage: model testing.

FINDINGS

A. Results of Qualitative Research

1. The Roles of Nutrition Officers

The roles of nutrition officers in preventing TB disease is not optimal since the counseling on nutrition for TB patients who come to the community health center is only provided for children under five years old. Meanwhile, counseling for adult TB patients has never been conducted. The following is an excerpt from an in-depth interview about the role of the nutrition officer:

"... The nutrition program for TB disease is based on the request of TB patients or officers who ask the nutrition department to provide menu that is suitable for patients' condition. It is usually only for toddlers or adults who are never referred to the nutrition department. Counseling for toddlers is only performed once at the first visit" (Nutrition Officer).

2. The Roles of Health Promotion Officers

The roles of health promotion officers in supporting TB disease prevention is not optimal, as they never conducted a special counseling on hygiene and healthy lifestyle for TB patients coming to the community health center. The programs only commonly discussed about general issues at the integrated healthcare center. Below is an excerpt from an in-depth interview about the role of health promotion officers:

"...The health promotion program on TB was not very effective because the programs only generally discussed about activities at the integrated healthcare center. TB management is usually carried out through home visits with environmental healthcare sanitarians to see whether their home environment might cause TB transmission. (Health Promotion).

3. The Roles of Environmental Healthcare Officers

The roles of environmental healthcare officers in supporting TB prevention program at the community health center is only in the form of home visit to see the environment of the patient as well providing as counseling about healthy home. It does not visit all patients' houses, but only some houses recommended by TB officers. The following is an excerpt from an in-depth interview about environmental healthcare officers:

"... I am involved in house visit since the TB officers usually look at the patients' environment. Since I am an officer, I provide the counseling at their home. Regarding the importance of maintaining the environment, it is only conducted once, unless there are complaints, we visit them again. In the counseling, I suggest them to not living in close contact with other family members, separating the sick people from people who are not sick. Then, they should always open the window to allow the light comes in. If they do not have any window, at least they must come outside the house or sunbathing" (Environmental Healthcare Officer).

B. TB Prevention Model

Based on the Focus Group Discussion (FGD), it is found that the TB prevention model in Makassar is optimizing the collaboration between TB officers, nutrition officers, environmental healthcare officers, health promotion officers and religious leaders in the form of counseling. Every TB patient who takes medication at the community health center must receive counseling about healthy home environment by health workers, nutrition that TB patients need to accelerate recovery by nutrition officers, healthy lifestyle by health promotion officers and psychological health to reduce stress by religious leaders.

DISCUSSION

Nutritional Status

Lack of nutrition decreases the immune system so that people will easily get sick. Lack of protein as well as calories and iron can increase the risk of pulmonary tuberculosis. The immune system will function properly if the nutrition and food is adequately fulfilled¹⁴. In this case, it is necessary to pay attention to the quality of food consumption which is determined by the composition of the type of food. Poor nutritional status can reduce the resistance against tuberculosis in both adults and children¹⁵.

The results of in-depth interviews show that many pulmonary tuberculosis patients are suffering from malnutrition which indeed significantly influences the patients' recovery process. Pulmonary tuberculosis treatment at the community health center only focuses on drug administration while counseling on nutrition has never been conducted. Nutrition counseling for pulmonary tuberculosis patients is only provided for toddlers and not for the adults.

Malnutrition that often occurs in TB patients is considered affecting their immune system and the treatment of TB disease¹⁶. Several studies has reported that active TB patients were more likely to be underweight than those with healthy control¹⁷. This lung disease can cause malnutrition, while malnutrition can worsen the disease. Pulmonary tuberculosis patients with malnutrition often take a longer time to recover and are at higher risk of developing secondary infections¹⁸.

House Environment

The requirement of occupancy density for all common housing is expressed in m² per person. In general,

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according to the Decree of the Minister of Health of the Republic of Indonesia Number 829/Menkes/S /VII/1999, the minimum bedroom area is 8 m² and it is not recommended to be occupied by more than 2 people in one bedroom, except for children under 5 years old. It means that bedroom occupants that does not meet the requirements (<4 m²/people excluding toddlers) will obstruct the air circulation so that the need for hygiene air is not met and thus it can be a cause of pulmonary TB. The more the number of occupant in a room, the faster the air in the room becomes polluted and the number of bacteria in the air will increase^{19,20,21}.

In-depth interviews with public health officers obtained information that counseling about healthy environment of TB patients was never specifically carried out, only in the form of general delivery at the integrated healthcare center or sometimes house visits to the locations of TB patients.

The statement of the informant above is in accordance with research conducted by (Aditana, Sitepu and Saputra, 2019)²² stating that the respondents whose occupancy density does not meet the requirements have a risk of suffering from positive pulmonary by acid-resistant bacteria 8 times higher than the respondents who fulfill occupancy density. A research conducted by (Satwikasa¹² 2018)²³ also states that room conditions are related to the incidence of pulmonary tuberculosis where people with room conditions that donot meet the requirements have 1.18 higher risk of contracting pulmonary TB compared to houses with room conditions that meet the requirements.

Hygiene and Healthy Lifestyle

Theoretically, behavior in biological perspective is an activity of the relevant organism²⁴. Human behavior has a very broad scope, such as walking, talking, reacting, and ⁶essing. According to (Malai and Malagi, 2019)²⁵, the factors that influence the formation of behavior are divided into 2, namely internal and external factors.

From the in-depth interviews with TB sufferers, it is obtained the information that preventive behaviors such as hygiene and healthy lifestyle, wearing mask when leaving the house, covering mouth with tissue when coughing, washing hands with running water after coughing, keeping a distance when talking or communicating with others, are not performed because they do not understand about the significance. It is confirmed with the health promotion officers that counseling on hygiene lifestyle of TB patients is not carried out. It is only performed in the form of general advocacy at the integrated healthcare center, TB and ⁷ne immunization.

The results of this study are in line with the research conducted by (Kanjee *et al.*, 2012)²⁶ that the risk factors of infectious pulmonary TB disease in the same household is statistically significant for the variables of the presence of the infectious source, sleeping in one room, and the period of sleeping in the same room. The risk of contracting pulmonary tuberculosis with a suspect of pulmonary TB is 3.22 times higher than that of people who have never had household contact with a suspect pulmonary TB patient. Sleeping in the same room with an infectious source is found to be statistically significant. Schlessberg states that close contact with pulmonary TB patient ARB (+) has the maximum risk of being infected with pulmonary tuberculosis, even though the infectious pulmonary TB disease is not spread as easy as viral infection.

Psychology

Pulmonary tuberculosis (TB) Patients generally experience stress that is manifested both in physical, psychological² and behavioral aspects due to their conditions, such as symptoms of TB disease, a long process of treatment with large amounts of drugs, disturbances in daily activities, public judgement, and risk of death²⁷.

From the in-depth interviews with TB patients, it is obtained the information that patients generally experience stress, especially at the beginning of treatment because they often feel dizzy due to the drugs side effects, and some even refuse to continue their treatment. The officers give medication every week not all at once with the aim that the patients do not get stressed by seeing too much medicine to consume. Another purpose is that the patient is expected to come to the community health center every week to take medication as well as consultation.

Dhikr contains spiritual or religious elements that can generate self-confidence and faith in sick people, so that their immune system increases, and ² therefore accelerating the recovery process²⁸. All the protectors in the body work with the obedience of worshipping, getting closer to Allah ²VT and being grateful so that the balance is manifested from the neurotransmitters in the brain. Finally, hormonal ² ability is formed and reducing stress and even creating eustress in pulmonary TB patients²⁹.

CONCLUSION

The resulting model is a flip chart about healthy home environment, nutrition needed by TB patients, hygiene lifestyle and types of dhikr to reduce stress. This model is in the form of collaboration guidelines for health workers and religious leaders in providing counseling to TB patients and guidelines for TB patients at home in accelerating recovery.

SUGGESTION

It is suggested that every pulmonary tuberculosis patient seeking treatment at the community health center must combine treatment with nutrition counseling, home environmental health, hygiene and healthy lifestyle and health psychological state to accelerate recovery.

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