

Malnutrition case in patient with pulmonary tuberculosis through a family medicine approach

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ABSTRACT

Underweight is a body mass index less than 18.5 kg/m². The prevalence of underweight in Southeast Asia from 1969 to 2017 was around 20%. The percentage of underweight in Indonesia reached 5% whilst in Banten Province in 2017 was 5.4%. Around 18,45% patients and 32,19% of patients with tuberculosis at Cikupa Health Care were underweight from January to September 2022. Mrs SH is an underweight patient with pulmonary tuberculosis. Her weight has not shown any improvement despite almost completing the intensive phase treatment of pulmonary tuberculosis. Improvement in nutritional status and monitor the pulmonary tuberculosis therapy in Mrs SH. Mrs SH, 24 years old, came to Cikupa Health Center to control her pulmonary tuberculosis treatment. The patient known to have nutritional problems since her childhood. Her weight has not shown any improvement despite almost completing the intensive phase of pulmonary tuberculosis treatment. After a family medicine approach for 5 weeks, the patient's weight has increased from 34.7 to 37.1 kg. The patient has also been notified for regular treatment and promised to follow pulmonary tuberculosis treatment until it is complete. The family medicine approach has been able to increase the patient's weight even though the target weight has not been achieved. The patient also promised to follow pulmonary tuberculosis treatment until it is complete. It is hoped that by following all the interventions given, the patient's body weight can reach the ideal weight and be declared complete of pulmonary tuberculosis treatment.

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INTRODUCTION

Family medicine or *Kedokteran Keluarga* (KK) is a medical specialty that provides ongoing and comprehensive health care to individuals and families (American Academy of Family Physicians, 2022). A family doctor provides primary and continuing care for the entire family in a community, addressing physical, psychological and social problems, and also coordinating comprehensive health care services with other specialists as needed (World Health Organization, 2003). Plays a

role to take the initial steps in solving problems of the patients by using biomedical science, psychology, and medical sociology (Anggraini *et al.*, 2015). Family doctors do not only passively wait for patients, but also visit patients and their families because family doctors have holistic care principles (Silvia *et al.*, 2022; Wiraharja, 2020).

Non-communicable diseases (NCDs), also known as chronic diseases, tend to last a long time disease and are the result of a combination of genetic, physiological, environmental, and behavioral factors (World Health Organization, 2022). One of the diseases included in the group of non-communicable diseases is underweight. Underweight is a state of malnutrition that occurs due to lack of intake of nutrients. Underweight is the nutritional status of a body mass index (BMI) of less than 18.5 kg/m² (Sukmawati, 2018; Wen-Harn Pan, 2008). In 2014, there were 462 million adults who were underweight in the world (World Health Organization, 2021). From 1969 to 2017, the combined prevalence of underweight respectively was 17% in South Asia and 20% in Southeast Asia (Biswas *et al.*, 2020). Based on the BMI, it is known that there were 5% of Indonesia's population suffering from malnutrition in 2017. It is also known that there are 16 provinces that have a percentage of undernourishment above the average of 5% in Indonesia and one of them located in the province of Banten, which is as much as 5.4% of the population (*Kementerian Kesehatan Republik Indonesia*, 2017). It is known that there are 18.45% of Cikupa Health Center patients who have malnutrition problems. One of its problem is also found in people with TB. It is known that there are 141 out of 438 (32.19%) TB patients who suffer from malnutrition at the Cikupa Health Center from January to September 2022.

In 2019, pulmonary TB ranks 13th and it is the main infectious agent causing death in the world (World Health Organization, 2021). It is estimated that nearly two billion people (about a quarter of the world's population) are infected with *Mycobacterium tuberculosis* (*M. tuberculosis*). Every year, around 10 million people suffer from pulmonary TB and 1.6 million people die from its case (Centers for Disease Control, 2021). The largest number of new TB cases in 2020 occurred in Southeast Asia (43%). Indonesia is a country with the third highest number of new TB cases in the world (*Kementerian Kesehatan Republik Indonesia*, 2021). According to the 2018 Basic Health Research team of the Ministry of Health of the Republic of Indonesia, the incidence of pulmonary TB in Indonesia was 321 per 100,000 population in 2018 (*Kementerian Kesehatan Republik Indonesia*, 2018).

Mrs SH, 24 years old, is a patient at the Cikupa Public Health Center who suffers from malnutrition with pulmonary TB. The patient is known to have nutritional problems since childhood. The treatment of pulmonary TB currently experiencing is entering the intensive phase of the 2nd month and it is known that the treatment has been going well so far. Even though the patient has almost completed the intensive phase of pulmonary TB treatment for 2 months, the patient's weight has not increased. For this reason, it is interesting to select and intervene with a family medicine approach.

RESEARCH METHOD

This type of research is qualitative with a case study approach (Sugiyono, 2017, 2018, 2019). Case taking was carried out at the Working Area of Public Health Center (*Puskesmas*) Cikupa, Cikupa Sub-district, Tangerang Regency, the Province of Banten.

RESULTS AND DISCUSSIONS

A 24 year old woman with malnutrition who had pulmonary tuberculosis was examined. The patient came to the Cikupa Health Center for pulmonary TB control which was diagnosed by the doctor on August 15, 2022. Based on the sputum examination result, positive results were obtained for pulmonary TB. Currently, the patient claims to have complaints of dry cough but not as often as before. The patient also said that her appetite during the illness had decreased because she felt nauseous and had a bitter mouth. The patient's weight decreased by 5 kg from 40 kg initially to 35

kg within 2 weeks after the cough was felt. The patient is known to have nutritional problems since childhood. Pulmonary TB treatment has been going well so far but the her weight has not shown any increase.

None of the patient's biological family had malnourished stature. The patient's parents-in-law who live at home with her had just completed treatment for pulmonary TB in July 2022. Before moving to live with her in-laws, the patient lived with his father in the village who also had a history of pulmonary TB with a duration treatment of 6 months. In 2017, she was declared to have completed treatment. In in 2018, the patient's sister passed away due to pulmonary TB.

On physical examination, the general condition looked mildly ill, conscious *compos mentis* with blood pressure of 120/80 mmHg, pulse 88x/minute, regular, sufficient volume, respiratory rate 18x/minute regular. The patient has a body weight of 35 kg and a height of 158 cm so that a BMI of 14kg/m² is obtained, which is classified as underweight based on Asia Pacific BMI criteria. Lung examination revealed vesicular breath sounds (+/+). The treatment given at the *Puskesmas* is intensive phase 1 OAT (Rifampin 150 mg/ Isoniazid 75 mg/ Pyrazinamide 400 mg/ Ethambutol 275 mg) 2 tablets per day and 1 tablet of vitamin B6 per day.

Based on Axis I (Personal Aspect), Holistic diagnosis, namely body weight has not increased even though almost completing the intensive phase of pulmonary TB treatment for two months, lack of appetite, and cough. In terms of Axis II (Clinical Aspect), it is known that the main diagnosis is pulmonary tuberculosis and an additional diagnosis is malnutrition. On Axis III (Internal Aspect), it is known that Mrs SH only eats 1-2 times per day (morning and afternoon) and in small portions. At night, Mrs SH only consumes wafers. She has a habit of eating with less varied menus and rarely eats carnivore side dishes, fruit and vegetables, rarely exercises, Mrs SH's cutlery. SH is not separated from other family members at home and rarely uses a mask when talking with other family members. Axis IV (External Aspects), it is known that Mrs SH did not know about the condition of tuberculosis and malnutrition that Mrs SH and the complications that can occur. The family has never been screened for pulmonary TB since Mrs SH exposed to TB. On axis V (Aspects of Patient Functional Status), it is known that the patient's functional degree is 5, that is, she is able to carry out daily activities without obstacles.

The intervention activity was carried out by visiting Mrs SH which was done for six times. The first visit was carried out on September 19, 2022 at 08.30 WIB at the Pulmonary TB Polyclinic at the Cikupa Health Center. Mrs SH came to the *Puskesmas* to control and took Pulmonary TB drugs and performed autoanamnesis, anthropometric examinations, and physical examinations on patient. After that, it was continued with the act of educating patient about pulmonary TB disease, which included definitions, causes, risk factors, signs and symptoms, modes of transmission, management, complications, prevention, and risks of interrupted TB treatment, explaining to the patient the importance of adherence to swallowing drugs so that they do not drug withdrawal or resistance occurs and also follow-up plans for Mrs SH and her family, as well as asked for informed consent from Mrs SH to intervene.

The second visit was carried out on September 23, 2022 at 14.00 WIB at the patient's house by evaluating Mrs SH. Apart from that, performing autoanamnesis and alloanamnesis on the patient and the patient's husband regarding disease development and whether there were side effects of the drug felt by the patient, conduct a dietary recall, then educate the patient regarding a balanced nutritional diet and TKTP because of her underweight. Follow-up autoanamnesis on the patient by inquiring more deeply about the habits of the patient and her family, as well as making observations about the situation in Mrs SH and the environment around her house. Evaluation of the patient's adherence to swallowing the drug was also carried out. The patient's husband was explained about the duties of the Medicines Supervisor (PMO). Patient was advised to drink at least 8 glasses of mineral water per day and tell her neighbors to immediately go to the health center.

The third visit was carried out on September 26, 2022 at 15.00 WIB in the patient's house. Actions taken by evaluating Mrs SH's complaints and compliance. SH in swallowing pulmonary TB drugs and screening Mrs SH's family by giving phlegm pots for all family members who live in the same house. Digital scales were provided to monitor Mrs SH. The patient's husband was explained and reminded again about the PMO duties. Mrs SH was reminded again about the importance of adherence to swallowing drugs and control at the *Puskesmas* according to a predetermined schedule through educational media in the form of a "Healthy Calendar Towards Free Pulmonary TB". In addition, the actions taken were to remind Mrs SH about the ways to prevent transmission of pulmonary TB to the patient's family and neighbors, such as separating cutlery and applying cough etiquette, including wearing a mask and providing examples of a balanced nutritional and high-calorie and high-protein (TKTP) diet menu for patient to gain weight.

The fourth visit was carried out on October 3, 2022 at 15.00 WIB in the patient's house by evaluating the actions that had previously been carried out on the third visit. Whereas, the fifth visit was carried out on October 10, 2022 at 09.00 WIB at the pulmonary TB poly at the Cikupa Health Center because Mrs H. The sixth visit was carried out on October 17, 2022 at 15.00 WIB in the patient's house by evaluating the interventions that had previously been given. Ny. SH was advised to take medication and routine control according to a predetermined schedule through educational media in the form of a "Healthy Calendar Towards Free Pulmonary TB".

From the actions given by Mrs SH, she understands about a balanced nutritional diet and TKTP, by eating more vegetables and fruit, getting used to consuming side dishes that contain high protein, getting used to consuming a variety of staple foods (yam, corn, potatoes, etc.), and limiting consumption of sweet, salty, savory, and fatty. Mrs SH understands about how pulmonary tuberculosis is transmitted through anything and how someone can be infected. Mrs SH understands and can apply cough etiquette. Mrs SH also understands the importance of wearing a mask when she is sick to protect herself and others so that she can prevent transmission to other people and understand the importance of exercise and apply it three times a week with a duration of \pm 30 minutes each to help boost the immune system. Mrs SH understands about the condition of malnutrition and pulmonary tuberculosis and her complications that can occur. Families who live at home have been screened for pulmonary tuberculosis and obtained negative sputum smear results.

CONCLUSION

It is known that the risk factors that have resulted in no improvement in nutrition of Mrs SH, who suffers from pulmonary tuberculosis, are that the patient's diet does not match daily energy needs. Holistic internal and external factors that cause malnutrition accompanied by pulmonary tuberculosis in Mrs SH through the mandala of health approach. Forms of holistic and comprehensive management that can be carried out in overcoming the health problems faced by Mrs SH are carried out according to the needs of internal and external factors.

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