

THE DIFFERENCES IN THE NUTRITIONAL STATUS OF PULMONARY TUBERCULOSIS PATIENTS BEFORE AND AFTER TREATMENT AT THE CLINIC KLIBUR DOMIN TIBAR TIMOR LESTE

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Abstract

Introduction: Based on data from the World Health Organization (WHO) in 2013 there were 9 million people in the world who were infected with TB germs (WHO, 2014). In 2014 there were 9.6 million people in the world infected with TB germs (WHO, 2015). In 2014, the highest number of pulmonary TB cases were in the African region (37%), the Southeast Asia region (28%), and the Eastern Mediterranean region (17%) (WHO, 2015). At the Clinic Klibur Domin Tibar there were 37 cases and in 2019 the first quarter was 20 cases and the second quarter was 17 cases.

Objective: To analyse the differences in the nutritional status of pulmonary TB patients before and after treatment at the Clinic Klibur Domin Tibar.

Methodology: A quantitative study conducted using a pre-experimental approach with a one group pre and post-test design with sampling technique were Simple Random and population of this study was 34 respondents. Data analysis is carried out use Pair T-Test statistic by using a SPSS version 20.

Discussion: In comparison with the population sample, the population is composed of only secondary schools of junior at the state level of malnutrition before and after treatment. Level of complementary treatment and clinical outcomes were also analyzed with logistical regression and adjustments to pre-specified factors that were confused. Kaplan-Meier survival estimates were used to examine the relationship between intervention and the time of death. Signification based on $P < 0.05$.

Conclusion: There are differences in the nutritional status of pulmonary TB patients before and after treatment at the Clinic Klibur Domin Tibar, with the results of the Paired Samples Test shows that the Mean Paired Differences value is 2.123.

Keywords: Nutritional status, Pulmonary Tuberculosis and Clinic Klibur Domin Tibar.

INTRODUCTION

Timor-Leste has exposed a reduction from the incidence of tuberculosis case (TB) in 2021, conferring to the World Health Organization (WHO) newly released global TB report. The tuberculosis incidence in the country had been still at 498 per 100,000 population for the past many years, but in 2021, the incidence showed a 2.4% decline to 486 per 100,000. The report also highlighted two other

positive trends in Timor-Leste of the country recorded a 92% success rate in TB treatment and the testing coverage with the use of rapid diagnostics at the time of diagnosis had improved 32%. In comparison, the treatment success rate in 2019 was 88% and the testing coverage stood at 11%, based on the results. According to the WHO in 2013 there were 9 million people in the world who were infected with TB germs (WHO, 2014). In 2014 there were 9.6 million people in the world infected with TB germs (WHO, 2015). In 2014, the highest numbers of pulmonary TB cases were in the African region (37%), the Southeast Asia region (28%), and the Eastern Mediterranean region (17%). (WHO, 2015). Currently, pulmonary TB is a disease of global concern, with various control efforts carried out, the incidence and deaths from pulmonary TB have decreased, but pulmonary TB is estimated to still attack 9.6 million people. Globally, in 2016, there were 104 million TB incident cases (CI 8.8 million-12 million) which is equivalent to 120 million cases per 100,000 population. Tuberculosis in Indonesia is a disease that ranks 2nd in the world after India and China, the Philippines, Pakistan, Nigeria and South Africa. Tuberculosis disease data in Indonesia in 2016 was 1,020,000 patients. The incidence and prevalence of tuberculosis in the community itself is still quite large and the death data in 2016 were 274 cases (WHO, 2017; cited by Tilman, CB & Soares, M., 2023).

Based on research conducted by Ernawati et al. 2018 with the title differences in the nutritional status of pulmonary TB patients between before treatment and during the advanced phase of treatment in Johari New, Central Jakarta with the results of the study showing that there was no significant difference in the nutritional status of pulmonary TB patients between before treatment and during the advanced phase of treatment ($p = 0.763$) and the conclusion, that the comparison of the nutritional status of patients before treatment and during the follow up phase of treatment is that there is a decrease in undernutrition status and an increase in normal nutritional status. At the Clinic Klibur Domin Tibar there were 37 cases and in 2019 the first quarter was 20 cases and the second quarter was 17 cases, (Head of Department Clinic Klibur Domin Tibar Dili-Timor Leste). Malnutrition in patients with TB disease can be influenced by several factors including: 1) economic factors; 2) comorbidities such as TB

with HIV infection or with Diabetes Mellitus; 3) lymph nodes (WHO, 2015). Pulmonary tuberculosis type of food consumed, knowledge; 4) knowledge; is an infectious disease caused by the bacillus Mycobacterium tuberculosis which is one of the respiratory tract diseases the lower respiratory tract where most of the tuberculosis bacilli enter the lung tissue through airborne infection and then undergo a process known as the primary focus. Furthermore, the bacteria infection which attacks the lung tissue where the bacteria enter the lung tissue through airborne infection and the bacteria will implant at the point of location in the alveoli and the bacteria will multiply (multiplying). Transmission of pulmonary tuberculosis occurs because germs are sneezed or coughed out into droplet nuclei in the air. These infectious particles can remain in the air for 1-2 hours, depending on the presence or absence of ultraviolet light, poor ventilation and humidity. In a humid and dark environment, germs can survive for days to months. When these infectious particles are inhaled by healthy people, they will stick to the airways or lungs. Particles can enter the alveolar if the size is less than 5 micro millimeters.

5) patient behavior towards food and health; 6) long time suffering from pulmonary TB (Martins N. Soares M.et al. 2017; Samuel, 2016; Puspita, 2015). The problem of nutritional status is important because improving nutrition is one of the efforts to prevent transmission and eradication of pulmonary TB. Poor nutritional status will increase the risk of pulmonary tuberculosis. On the other hand, pulmonary TB contributes to poor nutritional status due to the course of the disease that affects the body's resistance. Based on the description above, conducting research on the differences in the nutritional status of pulmonary TB patients between before and after treatment at the Clinic Klibur Domin Tibar Dili-Timor Leste.

General Objective

To analyses the differences in the nutritional status of pulmonary TB patients before and after treatment at the Clinic Klibur Domin Tibar Dili-Timor - Leste.

Specific Objectives

- To identify the nutritional status of patients with pulmonary TB before treatment.
- To identify the nutritional status of patients with pulmonary TB after treatment.

THEORITICAL FRAMEWORK

Pulmonary tuberculosis is an infectious disease that attacks the lung parenchyma caused by Mycobacterium tuberculosis. This disease can also spread to other body parts such as the kidneys, bones and

Nutritional status is a measure of a person's body condition which can be seen from the food consumed and the use of nutrients in that nutritional status is a state of the body which is the end result of balance between the nutrients that enter the body and their use. In addition, nutritional status is a state of the body that has a strong resistance because the food consumed by the body contains balanced nutrients. Factors related to the nutritional status of adults were; age, genders, income, education, socio-cultural, eating-behavior, physical activities, and environment. Malnutrition or lack of calories, protein, vitamins, iron and others will affect a person's

immune system so that he is vulnerable to diabetes including pulmonary TB. This situation is an important factor influencing in poor countries, both in adults and in children, the most important to understanding the status nutritional cited by (Tilman, CB & Soares, M., 2023).

Previous Research Study

According to Shamiyah Lateef, et al, conducted a study entitled Differences in Nutritional Status of Patients with Pulmonary Tuberculosis Before and After Treatment at Ibnu Sina Hospital Makassar, the purpose of the study was to determine the nutritional status of pulmonary TB patients before and after treatment at Ibnu Sina Hospital Makassar, the research method used This research is a comparative analytic study with cross sectional method Analytical data using paired sample t test. The results of the research are. Based on the results of the paired sample t test analysis above with the aim of submitting a hypothesis, the Sig value is obtained. which is 0.000

less than 0.05, then H0 is rejected and H1 is accepted, which means that there is a significant difference in the nutritional status of pulmonary tuberculosis patients before and after treatment. It can also be seen from the BMI value of pulmonary tuberculosis patients after treatment is greater than the BMI value of pulmonary tuberculosis patients before treatment.

According to Cholis Herniate et al, conducted a study entitled Differences in the Nutritional Status of Pulmonary Tuberculosis Patients between Before Treatment and During the Advanced Phase of Treatment in Johari New, Central Jakarta. New, Central Jakarta. The research method used is this research is a descriptive study. The study was conducted in January–March 2017 in Johari New District, Central Jakarta. The population is adult pulmonary TB patients (age 17 years) who are in the advanced phase of treatment (treatment 4 months) who are in the working area of the Johari New Health Center as many as 51 people.⁶ The sampling technique is by quota sampling. The results of the study are the results of this study concluded that the intervention of high-protein milk can improve nutritional status by increasing body weight and increasing energy and protein intake. The results of the Wilcoxon Signed Ranks test obtained a sig value of 0.763 (greater than 0.05), so there was no significant difference between the nutritional status of respondents before treatment and during pulmonary TB treatment. This is different from the study conducted by Forhold-Jepsen et al.¹⁵ that during two months of treatment TB patients will experience an increase in body weight of 3 kg, but in TB patients with DM there is a weight loss of 1.3 kg at the same time point of treatment.

METHODOLOGY

This study is a quantitative study, this study was conducted using a pre-experimental approach with a one group pre and post-test design, at the Clinic Klibur Domin Tibar, Dili-Timor Leste. This study uses the Simple Random Sampling technique, population of this study were 34 respondents. The data analysis is carried out use Pair T-Test statistic by using a SPSS version 20.

RESULTS AND DISCUSSION

Overview of Research Locations

Clinic Klibur Domin was founded in 1999 by the Ryder Cheshire Foundation in the Tibar area, Timor

Leste. At the time of joining Indonesia, this clinic was known as Panty Warda or Panty for the Elderly. Clinic Klibur Domin has facilities such as 16 buildings, 38 bedrooms and a total of 42 staff members who work in this clinic. The Clinic Klibur Domin is run by the Timorese who run the home, including all cooking, cleaning, driving, administration, maintenance and security care. Overall control of the house rests with Doman's Holiday Management Board. At this time the Clinic Coordinator and all staff are carrying out their respective duties.

Research Results

Table 1. Characteristics of the study sample according to gender in pulmonary tuberculosis patients at the Clinic Klibur Domin Tibar

| Sex | N | % |
|--------|----|-----|
| Male | 21 | 62 |
| Female | 13 | 38 |
| Total | 34 | 100 |

Table 2. Characteristics of the study sample according to age in patients with pulmonary tuberculosis.

| Age | N | % |
|-------------|----|-----|
| 15-27 years | 2 | 6 |
| 28-41 years | 7 | 21 |
| 42-55 years | 10 | 29 |
| > 56 years | 15 | 44 |
| Total | 34 | 100 |

Table 3. Occupation Frequency based on distribution of pulmonary TB Patients.

| Occupation | N | % |
|-------------------------|----|-----|
| Government employs | 1 | 3 |
| Self or private employs | 4 | 12 |
| Farmers | 14 | 41 |
| Employs | 15 | 44 |
| Total | 34 | 100 |

Table 4. Characteristics of the study sample according to nutritional status before and after treatment in pulmonary tuberculosis patients.

| Nutritional status | Before treatment (N) | % | After treatment (N) | % |
|--------------------|----------------------|-----|---------------------|-----|
| Underweight | 32 | 94 | 1 | 3 |
| Normal | 2 | 6 | 33 | 97 |
| Overweight | 0 | 0 | 0 | 0 |
| Obesities 1 | 0 | 0 | 0 | 0 |
| Obesities 2 | 0 | 0 | 0 | 0 |
| Total | 34 | 100 | 34 | 100 |

Table 4. above shows that based on nutritional status in patients before treatment, 32 people were underweight (94%), 2 people were normal (6%), 0 people were overweight (0%), and there are no patients classified as obesity 1 and obesity 2. Nutritional status in patients after treatment was underweight as many as 1 people (3%), normal as many as 33 people (97%), overweight as many as 0 people (0%), and there were no patients classified as obese 1 and obesity 2.

Table 5. Differences in nutritional status in patients with pulmonary tuberculosis before treatment and after treatment

| Paired Sample T test | Nutritional status | Before treatment (N) | After treatment (N) | P Value (0.05) |
|----------------------|--------------------|----------------------|---------------------|----------------|
| | Underweight | 32 | 1 | 0.547 |
| | Normal | 2 | 33 | |
| | Overweight | 0 | 0 | |
| | Obesities 1 | 0 | 0 | |
| | Obesities 2 | 0 | 0 | |
| Total | | 34 | 34 | |

The majority of the respondents with tuberculosis contributed to 34 analyses, of which data came from a sample test analysis that had been conducted with the aim of presenting a hypothesis, the value of this research was 0.547 higher than the value of 0.05 range. The use of H0 (rejected) and the use of H1 (rejected) as the intervention did not have significant positive or negative impacts on the treatment of the nutritional status of patients with pulmonary tuberculosis before and after treatment. The results of the analysis can be measured by the BMI of the patient with pulmonary tuberculosis before treatment with a higher AS value and to compare the BMI of the patient with pulmonary tuberculosis after treatment with a lower value. Finally, it is to conclude that food does not improve the results of the treatment of tuberculosis in patients with a higher number of patients before treatment than the lower number of patients after treatment in Timor-Leste. Further studies are required for other institutions that have the competence to measure the results.

CONCLUSION

Successfully conducted a quantitative study of the perspective involving 34 participants with pulmonary TB to assess the nutritional status before and after treatment, it concluded:

- Nutritional status of patients with pulmonary TB

before mostly with poor nutritional status as much as 32 (94%).

- Nutritional status of patients with pulmonary TB after treatment mostly normal nutritional status as much as 33 (97%).

- There are differences in the nutritional status of pulmonary TB patients before and after treatment at the Clinic Klibur Domin Tibar, Dili Timor-Leste.

In addition, results of the "Paired Samples Test" above, it shows that the "Mean Paired Differences" value is 2.123. This value shows the difference between the average results before and the average results after treatment is $17.14 - 19.27 = -2.13$ and the difference between the differences is between -2.475 to -1.770 (95% Confidence Interval of the Difference Lower and Upper). This study has suggested that Health workers should be able to facilitate the community by socializing the nutritional status of pulmonary TB patients in order to prevent the transmission of tuberculosis, or the formation of new active health cadres so that more people have the knowledge, attitude to prevent tuberculosis and make home visits. Besides, It is necessary to increase the family's understanding of tuberculosis through an active role in utilizing existing health services and increasing supervision of the daily ac-

tivities of tuberculosis sufferers at home as well as monitoring the communication that occurs between tuberculosis sufferers and other family members as well as paying attention to nutritional status or nutritional fulfillment in patients with tuberculosis, under observation by health professionals cited (Tilman CB & Soares, M, 2023).

REFERENCES

- World Health Organization (2015). Health in 2015: from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals. Switzerland: World Health Organization.
- Ahmadi, U.F, (2011). Basic Knowledges of Environmental Diseases. 1st Edition. Jakarta: Raja-wali Pers.
- Alitame, (2012). Tuberculosis and Tobacco Use. Jakarta: Faculty of Medicine University of Indonesia Publisher.
- Ministry of Health Republic of Indonesia., (2017). Pharmaceutical Care for Tuberculosis. National Directorate of Community Pharmacy and Clinical Pharmacy.
- Ministry of Health Republic of Indonesia, (2017). Manual Book of Infectious Tuberculosis National Program. General Directorate of Health Delivery Services. 2nd Edition: Jakarta.
- Ministry of Health (2010). National Strategic Plan 2011-2030 of the Health Sector, Timor-Leste. Dili.
- Global, regional and country-specific data for key indicators, (2011) who.int/tb/publications/global_report/gtbr12_annex4.pdf. accesses available on October 4th 2019.
- Tilman C.B et al. (2020). The Perception of Population and Health Professionals regarding the National immunization Program of Timor-Leste. Health Systems and Policy Research, ISSN 2254-9137 Vol.7 No.1:2 2020. www.imedpub.com published date May 11, 2020.
- Ministry of Health Timor-Leste (2021), Health Reports of National Program of Tuberculosis (NTP), Dili-Timor- Leste.
- Vilelas, J. (2009). Research. Knowledge Construction Process, 1st edition. Lisbon: Syllable.
- Fortin, F (2014). The health research process. Lusodidacta Portugal.
- Briz, T. (2015) Health, Public Health and the determinants in health-in-the-threads of time'. Lisbon Publisher.
- Dean AG, Sullivan KM. Sue MM. OpenEpi: open-source epidemiologic statistics for public health: version 3.01. [acceded in 02/10/2023].
- Freire LMS, Fr Menezes. Measles and Infectious Diseases in Childhood and Adolescence. 2to ed. Rio de Janeiro: MEDSI; 2020. P:851-83.
- World Health Organization (2018). Primary Health Care for Population in East Timor. Geneva-Switzerland.