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Characteristics of Tuberculosis Patients in the Binuang Health Center in the 2021-2022 Period

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ABSTRACT

Background: Tuberculosis (TB) is a contagious infectious disease caused by infection with the bacillus Mycobacterium tuberculosis. WHO revealed that TB is the 13th cause of death and the second infectious killer after COVID-19. If TB is not treated or the treatment is incomplete, it can cause dangerous complications and death. The study aims to find out the characteristics of TB patients at the Binuang Community Health Center in the 2021-2022 period.

Methods: This research uses descriptive research methods with a cross-sectional study design. Using 70 samples of medical record data from patients who had been diagnosed with TB at the Binuang Community Health Center in 2021-2022. The analysis used was univariate.

Results: The majority of patients were in the 51-60-year-old group (21.4%), male (74.3%), had at least elementary school education (37.1%), did not have a job or were self-employed (22.9%), married (68.6%), bacteriologically confirmed TB group (68.6%), anatomically located in the lungs (85.7%), including new cases (97.1%), category 1 treatment (91, 4%), the result of treatment was cured (64.3%), clinical symptoms of cough > 2 weeks (87.1%), negative HIV status (87.1%), and negative DM status (80%).

Conclusion: Based on the results of this research, it is hoped that the community health center will complete data relating to patient illnesses to help research quantity and quality variables. For primary health workers to further increase public knowledge about TB disease and the importance of taking TB medication regularly

Keywords: Binuang, Characteristics of Patients, Health Center, Tuberculosis

ABSTRAK

Latar belakang: Tuberkulosis (TB) adalah penyakit menular menular yang disebabkan oleh infeksi bacillus Mycobacterium tuberculosis. WHO mengungkapkan bahwa TB adalah penyebab kematian ke-13 dan pembunuh infeksi kedua setelah COVID-19. Jika TB tidak diobati atau pengobatan tidak lengkap, dapat menyebabkan komplikasi berbahaya dan kematian. Penelitian ini bertujuan untuk mengetahui karakteristik pasien TB di Puskesmas Binuang pada periode 2021-2022.

Metode: Penelitian ini menggunakan metode penelitian deskriptif dengan desain studi cross-sectional. Menggunakan 70 sampel data dar irekam medis pasien yang telah didiagnosis TB di Puskesmas Binuang pada tahun 2021-2022. Analisis yang digunakan adalah univariat.

Hasil: Mayoritas pasien berada pada kelompok usia 51-60 tahun (21,4%), laki-laki (74,3%), setidaknya memiliki pendidikan dasar (37,1%), tidak memiliki pekerjaan atau wiraswasta (22,9%), menikah (68,6%), kelompok TB yang dikonfirmasi bakteriologis (68,6%), secara anatomi terletak di paru-paru (85,7%), termasuk kasus baru (97,1%), pengobatan kategori 1 (91,4%), hasil pengobatan sembuh (64,3%), gejala klinis batuk > 2 minggu (87,1%), status HIV negatif (87,1%), dan status DM negatif (80%).

Kesimpulan: Berdasarkan hasil penelitian ini, diharapkan puskesmas melengkapi data yang berkaitan dengan penyakit pasien untuk membantu penelitian jumlah dan variabel kualitas. Bagi tenaga kesehatan primer untuk lebih meningkatkan pengetahuan masyarakat tentang penyakit TB dan pentingnya minum obat TB secara teratur
Kata Kunci: Binuang, Ciri-ciri Pasien, Puskesmas, Tuberkulosis.

1. Introduction

Tuberculosis (TB) is a contagious infectious disease caused by infection with the bacillus Mycobacterium tuberculosis. Tuberculosis is an infectious disease that spreads through the air. These bacteria generally attack the lungs; some can attack outside the lungs, such as the lymph nodes, skin, intestines or digestive tract, brain membranes, etc. Tuberculosis is estimated to have existed in the world for 5000 years BC and infects around 10 million of the world's population every year. If TB is not treated or the treatment is incomplete, it can cause dangerous complications and death. The World Health Organization (WHO) revealed that TB is the 13th cause of death and the second infectious killer after COVID-19 (above HIV/AIDS), so TB is a global concern. In 2021, it is estimated that around 1.6 million of the world's population will die from TB (including 187,000 people with HIV). Globally, TB incidence is decreasing by around 2% per year, and between 2015 and 2020, the cumulative decline was around 11%. This is more than halfway to the End TB Strategy milestone of a 20% reduction between 2015 and 2020. Despite this, new TB cases continue to increase, and many are not successfully cured, especially in countries grouped into the 30 countries with a major tuberculosis problem (High Burden). Countries) [1-4].

WHO reports that the estimated number of people diagnosed with TB in 2021 globally will be 10.6 million cases, an increase of around 600,000 cases from 2020, which was estimated at 10 million TB cases. Of the 10.6 million cases, 6.4 million (60.3%) people have been reported and are undergoing treatment, and 4.2 million (39.7%) other people have not been found/diagnosed and reported. Anyone can suffer from TB; of the total 10.6 million cases in 2021, at least 6 million cases are adult men, then 3.4 million cases are adult women, and the other TB cases are children, namely 1.2 million cases. Deaths due to TB as a whole are also considered very high; at least 1.6 million people died from TB; this figure is up from the previous year, namely around 1.3 million people. 187,000 people died from TB and HIV. Several countries have succeeded in reducing the TB burden from year to year (>20%), including Bangladesh (2020), Lesotho (2020 and 2021), Myanmar (2020 and 2021), Mongolia (2021) and Vietnam (2021) [4].

In 2021, Indonesia itself will be in SECOND position with the highest number of TB sufferers in the world after India, followed by China, the Philippines, Pakistan, Nigeria, Bangladesh, and the Democratic Republic of Congo in sequence. In 2020, Indonesia was in third place with the highest number of cases, so 2021 will not be better. TB cases in Indonesia are estimated at 969,000 TB cases (one person every 33 seconds). This figure is up 17% from 2020, namely 824,000 cases. The incidence of TB cases in Indonesia is 354 per 100,000 population, which means that for every 100,000 people in Indonesia, 354 people suffer from TB. Disruption due to the COVID-19 pandemic since 2020 is predicted to cause a setback in achievements of up to 5-8 years. The death rate due to TB in Indonesia has reached 150,000 cases (one person every 4 minutes), an increase of 60% from 2020, when there were 93,000 deaths due to TB, with a death rate of 55 per 100,000 population. Of the total 969,000 estimated TB cases in Indonesia, only 443,235 (45.7%) cases were found, while 525,765 (54.3%) other cases had not been found and reported. In 2020, the number of undiscovered cases was 430,667 cases. This means that there is a significant increase in the number of undiscovered cases. Meanwhile, case discovery achievements increased in 2020, with 393,323 cases [4].

In 2021, the highest number of cases reported was in provinces with large populations, namely West Java with 91,368 cases, Central Java with 43,121 cases, and East Java with 42,193 cases. Meanwhile, in South Kalimantan, in 2021, there were 4,050 cases of tuberculosis found. Based on data released by the South Kalimantan Provincial Health Service in 2021, the total number of tuberculosis sufferers is 4140 cases, with a TB case detection coverage (treatment coverage) of 27.4% (target 90%), treatment success rate (treatment success rate).) was 84.12% (target 90%), and the success rate for treatment of drug-resistant TB was 57.14% (target 75%). Meanwhile, the total number of TB cases in Tapin Regency in 2021 is 156 cases [5-7]. The aim of the study was because the number of TB sufferers in South Kalimantan Province, especially in the Tapin district, is still high, and the death rate is still high,

2. Methods

This research uses descriptive research methods with a cross-sectional study design. This research took medical record data from patients who had been diagnosed with TB at the Binuang Community Health Center in 2021-2022. The data collection will be carried out from February to May 2023. The sample in this research was taken using a non-probability sampling technique with purposive sampling (purposeful sampling). According to Sugiyono (2015), the purposive sampling technique takes samples from the population based on specific considerations. Researchers determined inclusion criteria, namely: Patients whose names are registered in the medical record and patient register book with a diagnosis of Tuberculosis for the period 2021-2022, There is a patient card and treatment card in the TB patient data, there are clinical symptoms recorded in the patient's medical record, and there are final results of TB treatment. The data obtained is grouped based on predetermined groups of variables, then presented descriptively in narrative form, and a frequency distribution table is then processed and analyzed using a statistical application program.

3. Results

The data used in this research is secondary data in the form of medical record data for Tuberculosis patients registered in the Binuang Health Center TB patient book for 2021-2022. According to data from this study, 74.3% of patients were men, and the remaining 25.7% were women. The samples that met the research criteria were 70 patients. Based on Table 1, the highest number of patients was in the 51-60-year age group.

Table 1. Frequency Distribution of Patients Based on Age

Age (year)	(n)	(%)
≤10	6	8.6
11-20	8	11.4
21-30	11	15.7
31-40	10	14.3
41-50	12	17.1
51-60	15	21.4
≥61	8	11.4
Total	70	100

Based on Table 2, the highest number of people with the highest level of education was completing elementary school, namely 26 people (37.1%), followed by those not yet attending school.

Table 2. Frequency Distribution of Patients Based on Education

Education	(n)	(%)
Not yet attending school	7	10
not yet completing elementary school	6	8.6
elementary school	26	37.1
junior high school	12	17.1
Senior high school	18	25.7
S1	1	1.4
Total	70	100

Based on Table 3, it can be seen that the majority of TB patients are included in the group of bacteriologically confirmed TB cases namely 48 (68.6%) people while clinically diagnosed TB cases are 22 (31.4%) people.

Table 3. Frequency Distribution of Patients Based on TB Case Diagnosis

Type of TB Case Diagnosis	(n)	(%)
Clinical Diagnosed	22	31,4
Bacteriologically confirmed	48	68,6
Total	70	100

Based on Table 4, it can be seen that the majority of TB patients at the Binuang Community Health Center are included in the pulmonary TB group, namely 60 people (85.7%) and the extrapulmonary TB group 10 (14.3%) people.

Table 4. Frequency Distribution of Patients Based on the Anatomical Location of TB Disease

Anatomical location	(n)	(%)
Extra Pulmonary TB	10	14.3
Pulmonary TB	60	85.7
Total	70	100

Based on Table 5, it can be seen that the majority of TB patients are included in the new case type group, namely 68 people (97.1%), while the relapse and treatment dropout types are 1 person each (1.4%).

Table 5. Frequency Distribution of Patients Based on the Type of TB Patient

Type of TB Patient	Frequency (n)	Percentage (%)
New Case	68	97.1
Relapse Cases	1	1.4
Dropped Out of Treatment	1	1.4
Total	70	100

Based on Table 6, it can be seen that the majority of TB patients are included in the category 1 treatment group, namely 64 people (91.4%). In comparison, in the children category, there are 6 people (8.6%). Category 2 was not found in this study.

Table 6. Frequency Distribution of Patients Based on TB Treatment Category

TB Treatment Category	(n)	(%)
Category 1	64	91.4
Children category	6	8.6
Total	70	100

Based on Table 7, it can be seen that the majority of TB patients had a cured status at the end of treatment, namely 45 people (64.3%), followed by complete treatment status at 15 people (21.4%), 7 people (10%) dropped out of treatment. And 3 people died (4.3%).

Table 7. Frequency Distribution of Patients Based on Final Results of TB Treatment

Final Results of TB Treatment	(n)	(%)
Complete Treatment	15	21.4
Cured	45	64.3
Died	3	4.3
Dropped Out of Treatment	7	10.0
Total	70	100

Based on the table 8, it can be seen that the negative results on TB sputum examination were found in TB patients, namely 32 people (45.7%), followed by patients whose sputum was not examined, namely 18 people (25.7%), +1 results were 16 people (22.9%), +3 results were 3 people (4.3%), and +2 results were 1 person (1.4%).

Table 8. Frequency Distribution of Patients Based on TB Sputum Examination Results

Sputum TB	(n)	(%)
+1	16	22.9
+2	1	1.4
+3	3	4.3
Negative	32	45.7
Not Examined	18	25.7
Total	70	100

Based on Table 9, it can be seen that the majority of TB patients have negative HIV status, namely 61 people (87.1%), followed by unknown status in as many as 7 people (10%) and positive status in as many as 2 people (2.9%).

Table 9. Frequency Distribution of Patients Based on HIV Status of TB Patients

HIV status	(n)	(%)
Negative	61	87.1
Positive	2	2.9
Unknown	7	10.0
Total	70	100

4. Discussions

The results of Novita and Ismah's 2017 research at the Seberang Ulu 1 Palembang Health Center, stated that the highest age group of tuberculosis sufferers was in the 49-61-year age group (25%). The same results were also obtained by Siwi et al. in 2015 at the Harapan Raya Pekanbaru Community Health Center, where the highest number of people were in the 45-64 years age group (56.67%). This situation is quite following the results of the 2013 Riskesdas which stated that TB prevalence was found to be more common with increasing age. However, the increase in prevalence was more significant in the age group aged >45 years. The WHO report reveals that the global prevalence of TB is more common in the 25-40-year-old age group and is rarely found in children aged 5-15 years [3,4], [8,9].

In this study, productive age to the elderly had the highest prevalence of pulmonary tuberculosis cases. TB often occurs in adults at/productive age, possibly due to two causes. First, the adult was infected with primary TB in his environment when he was a child, but preventive measures were not appropriately taken, so it appeared as an adult. The second possibility is that there are activities and work environments in groups of adults who interact with TB sufferers or environments that make it easier to contract TB. This age group

that is still productive will often gather with people in certain places (workplaces). This will provide a great opportunity for disease transmission [9].

Helmi stated that high mobility in productive age can increase the risk of exposure to Mycobacterium tuberculosis. Groups with low mobility reduce the chance of being exposed to germs. Reactivation of dormant germs occurs more often in productive age, although the immune system in productive age tends to be better than in older age groups. Meanwhile, in the elderly group, the older a person is, the more their immune system will decline, resulting in a decrease in innate function and cell-mediated immunity, making older people more susceptible to infection. Besides that, comorbidities are increasingly emerging in the elderly age group. So, these are some of the things that make it easy for pulmonary tuberculosis to occur [10-12].

These results follow several studies, one of which is Novita and Ismah's 2017 research at the Seberang Ulu 1 Palembang Health Center, which stated that the majority of tuberculosis patients were male (70%). Research by Isnani et al. in 2019 at the Pekauman Community Health Center, Banjarmasin City, stated the same thing, where the highest prevalence of men was found (60%) in the study compared to women (40%). Meanwhile, the same thing was found in other areas of South Kalimantan, namely in research by Ellyse et al. 2019 at the Batulicin I district health center. In Spice Land, it was found that men (59.6%) were more dominant than women (40.4%). This situation follows the results of the 2013 Riskesdas and WHO, which states that the prevalence of TB is more common in men and women [3,4],[13,14].

There are several reasons why men are at risk more than women, such as women's immunity being higher than men's. Then another cause of differences in the frequency of pulmonary TB disease between men and women is differences in living habits. The possible differences in living habits are smoking and drinking alcohol. Where more men smoke and drink alcohol than women. Smoking and alcohol can reduce the body's immunity, making it easier to get pulmonary TB disease. Smoking can double the risk of getting TB. Men also do more strenuous activities, work hard, and don't get enough rest, so men are more susceptible to contracting pulmonary TB disease [15].

Regular exposure to cigarette smoke accompanied by environmental pollution can damage the secretion process of the tracheobronchial mucosa and damage the function of alveolar macrophages so that foreign organisms such as Mycobacterium tuberculosis bacteria can easily penetrate the body's defense system in the lungs [16].

This situation follows the results of the 2013 Riskesdas, which states that the higher the level of education, the lower the prevalence of TB [3,4]. Apart from that, this result follows research by Isnani et al. in 2019 at the Pekauman Community Health Center, Banjarmasin City, which obtained the highest level of education for TB patients. until the end of elementary school with a percentage of 55%. The results of this study also followed the literature review by Noviyanti and Irnawati in 2021, who reviewed 5 articles that showed that the characteristics of pulmonary TB patient respondents were that 236 (49.1%) had elementary school education. These results are in line with research conducted by Wulandari Yan, who stated that the research respondents who had primary education levels were more than 41 people, with a percentage of 58.6% [17,18].

This situation follows the 2013 Riskesdas results, which stated that most TB sufferers were found in the non-working group. 3-4 This result also follows Isnani et al.'s 2019 research at the Pekauman Community Health Center, Banjarmasin City, which received the most TB patients in the non-working group. With a percentage of 55%, and Novita and Ismah's research in 2017 had a percentage of 37.5%. Meanwhile, in the Sitanggang research in 2020, getting work as an entrepreneur was found to be the highest with a percentage of 31% [9,13].

Working as an entrepreneur, such as trading, has a greater risk of being infected with pulmonary TB because these workers come into contact with many people. Likewise, those who work as housewives or are not working are also influenced because having a job and low income causes that person to focus their income more on meeting their daily needs. If they are sick, most people with a low social level will not immediately have their illness checked by an officer. Health: only when they feel they are not getting better will they have their illness checked by a health service officer. [13,20].

These results follow research by Octaviani and Kusuma in 2018, which stated that the majority of TB patients were married, with a percentage of 88.9%. The same results were also found by Etrawati et al., where the majority of patients were married with a percentage of 61.4% [21,22]

Marital status is one of the factors that can influence the incidence of pulmonary TB. This makes it easy for the disease to spread, especially to partners. If we look at the conditions that exist in society, even though a person's marital status is married (whether divorced or dead) or unmarried, this does not indicate that the individual will only live alone in a house but will live in the same house with other family members such as

other people. Parents, siblings, or other close family. So even if someone is considered unmarried or married, if they live in the same house, they will be at risk of contracting pulmonary TB if a member of the family is infected with pulmonary TB [21,22]

These results follow Alif et al.'s research, which found that the majority of TB patients had bacteriological confirmation, namely 67.3%. This result is also supported by Ibrahim and Yundri's research, which found the same thing where the highest type of TB diagnosis was bacteriologically confirmed patients, namely 75%. [23,24]

Diagnosis of bacteriologically confirmed TB patients includes microscopic examination or culture. (Jendal, 2017) In this study, the diagnosis of Tuberculosis (TB) sufferers at the Binuang Community Health Center was more likely to be confirmed bacteriologically (68.6%). Bacteriologically confirmed TB patients are TB patients who are proven positive by examining biological test samples (sputum and tissue) through direct microscopic examination, TB TCM, or culture [25].

These results follow Azizi et al.'s research, which found that the majority of patients were included in the pulmonary TB group with a percentage of 89.2%. This result also matches Ibrahim and Yundri's research, which obtained the highest percentage in the pulmonary TB group with 92.5% [24,26]. These results follow Azizi et al.'s research, which found that the most significant number of extrapulmonary TB patients were TB lymphadenitis (glandular TB) at 68.7% [26].

These results follow Suseno and Latifah's research at the Madukara Community Health Center in 2020, which found the newest cases of TB patients, namely 96.7%. Anwar also found the same results in his research in Ternate, with a percentage of new TB cases of 98.6% [29,30].

These results follow Alif et al.'s research, where the majority of patients received category 1 OAT guidance, namely 94.6%. These results are also in line with Anwar's research, which stated that the majority of TB patients received category 1 OAT guidance, namely 95.2% [23,30]

The results above show that most pulmonary TB patients receive category I treatment, which is adjusted to the type of diagnosis and results of TCM. Category 1 is used for new TB cases, and the child category is for pediatric TB cases. Meanwhile, category II (2 HRZES/HRZE/5 H3R3E3) is for repeat patients (category I treatment patients failed, or patients relapsed) [30,31]

These results follow Suseno and Latifah's research, which obtained the highest number of TB patient treatment results with cured status, namely 53.3%. In another study by Arisandi et al. regarding the success rate of treatment of pulmonary TB sufferers in the work area of the Sleman Regency Health Centre, it was found to be 90.04%, consisting of a cure rate of 48.66% and a complete treatment rate of (41.38 %) [29,32]

A person's level of good knowledge about TB and the willingness and confidence of TB sufferers to recover can influence the patient's behavior toward compliance with treatment for at least 6 months. Drug Swallowing Monitoring Officers (PMO) are parties who play an essential role in supporting the success of treatment and are guided by technical officers at each regional health center who always provide information about TB disease and its treatment [32-34].

These results align with Dewi et al.'s research, where the majority of TB patients had negative BTA sputum results with a percentage of 64%. A higher percentage of negative BTA status was found in this study, in line with research by Fachri et al., which found that patients with TB alone had more negative BTA than positive [35,36].

These results follow research by Alif et al., which found that the majority of TB patients had HIV-negative status, namely 98.2%. This result is also supported by Muchtar et al.'s research which obtained the highest HIV-negative status, namely 86.2%. The HIV-positive result of 2.9% in this study is close to the national estimate reported by the Ministry of Health of the Republic of Indonesia (Kemenkes RI) in 2011, where the national estimate of HIV prevalence in new TB patients was 2.8% [23,39]

DM sufferers are also at risk of TB based on the results of a systematic review by Wijaya in 2015, an increase in the prevalence of DM sufferers was followed by an increase in the prevalence of pulmonary TB, with a risk of 2 to 3 times higher risk of suffering from pulmonary TB compared to sufferers without DM. DM sufferers experience several immunological declines and physiological disorders of the lungs in the cleaning process so that TB bacteria can spread quickly [40]. Glucotoxicity is defined as a damaging process arising from the adverse effects of chronic hyperglycemia. Disruption of activity and weak cellular immune power cause immune cells to be unable to block and phagocytose TB germs that infect the body. As a result, TB germs continue to grow and cause TB disease in the person [41].

5. Conclusions

In this study, from 70 TB patients at Binuang Health Center, Tapin regency, for the period 2021 - 2022, it was found that the majority of patients were in the 51-60-year-old group (21.4%), male (74.3%), had at least elementary school education (37.1%), did not have a job or were self-employed (22.9%), married (68.6%), bacteriologically confirmed TB group (68.6%), anatomically located in the lungs (85.7%), including new cases (97.1%), category 1 treatment (91, 4%), the result of treatment was cured (64.3%), clinical symptoms of cough > 2 weeks (87.1%), negative HIV status (87.1%), and negative DM status (80%). For primary health workers, especially doctors and nurses in the TB department, to further increase public knowledge about TB disease and the importance of taking TB medication regularly.

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