Related Factors with BTA Positive Conversion on Sufferer Tuberculosis

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ABSTRACT	ARTICLE DETAILS

ABSTRACT

Tuberculosis is an infectious disease chronic Which caused by Mycobacterium tuberculosis. Objective study: To analyze related factors _ with BTA positive conversion on Pulmonary TB sufferers at the Community Health Center Biau Regency Buol. The study was implemented in the Work Area Public Health Center Biau Regency Buol. Sample in study This is sufferers of Tuberculosis undergoing lung _ treatment. The study takes place with a selection of 45 people. Research This is analytical survey research with a design. Population is the whole object to be researched. Population in study This is all pulmonary TB sufferers undergoing treatment for more than 2 months; the sample study totaled 45 people using the total sampling technique. Results findings show A relationship between treatment adherence and BTA-positive conversion in tuberculosis sufferers with p-value = 0.044. There is a relationship between family support and BTA-positive conversion in tuberculosis sufferers with a p-value = 0.001. There is no relationship between support from health workers and BTA positive conversion in tuberculosis sufferers with p-value = 0.581, there is a relationship between knowledge and BTA Positive conversion in tuberculosis sufferers with p-value = 0.000, there is a relationship between access to health services and BTA positive conversion in tuberculosis sufferers with p-value = 0.035, there is no relationship between preventive behavior and positive BTA conversion in tuberculosis sufferers at Biau Community Health Center, Buol Regency with p-value = 0.561. This study concludes that family support has a risk of 66,442 times the incidence of BTA-positive conversion in pulmonary TB sufferers.
KEYWORDS: BTA Positive, Tuberculosis, Sufferer Tuberculosis.

INTRODUCTION

The development of the times and technology, which is experiencing significant growth, greatly impacts environmental health problems. The quality of environmental health is one of the factors that influences human health, which is the factor that makes the most immense contribution to achieving health status (Siallagan et al., 2023). In this case, the environment also takes a proportion as one of the causes of disease, where poor environmental quality can influence the speed of the spread of Tuberculosis or TB where local people live (Tola et al., 2019).

According to WHO in the 2021 Global Tuberculosis Report, TB is still the highest cause of death after HIV/AIDS and is one of the 10 leading causes of death worldwide. Pulmonary Tuberculosis is also the leading cause of death related to anti-microbial resistance and the main killer of people living with HIV. Globally, it is estimated that 9.9 million people suffered from TB in 2020. The number of deaths due to Tuberculosis globally in 2020 was 1.3 million. This has increased compared to 2019, which was 1.2 million (WHO, 2021).

Indonesia is one of the countries facing the triple burden of TB, namely TB incidence, Drug Resistant TB (RO) incidence, and HIV TB. Indonesia is also one of the countries with the highest TB burden in the world, with an estimated number of people falling ill due to TB reaching 845,000 with a death rate of 98,000 or the equivalent of 11 deaths/hour, and there are 24,000 cases of Drug-Resistant TB (TB RO). Indonesia is included in the group of 30 highest high-burden countries globally. The seven countries contributing to 64% of TB cases in the world are India, Indonesia, China, the Philippines, Nigeria, Pakistan, and South Africa, where Indonesia is ranked 2nd out of 7 countries contributing to 64% of TB cases in the world (WHO, 2021).

One of the measures used to monitor and assess the treatment of pulmonary Tuberculosis (pulmonary TB) is to achieve a conversion rate of at least 80% in the initial (intensive) phase, especially in new patients. The conversion rate refers to the percentage of pulmonary TB sufferers initially positive for

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BTA (Acid-Fast Bacillus) who changed to BTA negative after two months of intensive treatment (Febriani et al., 2022). Low conversion rates can impact public health and the success of TB control and eradication programs. This is because pulmonary TB patients who are initially positive for BTA and fail to convert are at high risk of transmitting pulmonary TB disease and BTA-positive to others (Febriani et al., 2022) (Shofiya & Sari, 2016).

To control Tuberculosis (TB) at the national level, the DOTS strategy has been implemented since 1995 by the World Health Organization (WHO) recommendations. This DOTS strategy focuses on strict supervision to ensure that TB patients complete the entire duration of treatment that has been determined until they are declared cured. The DOTS strategy aims to reduce the incidence and death rates due to TB in the community. Despite this, TB remains a significant global public health problem (Rahmah, Putri Mufridah., Tunru, 2018).

Based on data from the Central Sulawesi Provincial Health Service, the number of Tuberculosis cases in Central Sulawesi Province in 2020 was 2,520, with 2,367 patients being treated. These cases have increased in 2021, namely 2,780 people, with 2,547 patients being treated. The success rate for Tuberculosis treatment in Tangah Sulawesi Province is 78.99%. This figure is still lower than the Indonesian Ministry of Health standard, namely 87%.

The most crucial aspect of successful TB treatment is the conversion of sputum from positive to negative. Suppose there is a delay or failure to achieve sputum conversion after 2 months of treatment. This indicates a suboptimal treatment response and can contribute to drug-resistant or multidrug-resistant (MDR) TB instances. This can also increase the risk of spreading TB by patients, which can increase morbidity and even death rates due to TB (Adane, K., Spigt, M. & Dinant, 2018).

Factors such as patient compliance, patient knowledge, family support, motivation to take medication, and low communication and educational information (KIE) can influence pulmonary TB treatment. The high rate of non-adherence to treatment will lead to a high rate of treatment failure in pulmonary tuberculosis patients, and more and more pulmonary tuberculosis patients will be found with BTA that is resistant to standard treatment (Rahmah, Putri Mufridah., Tunru, 2018). This irregularity causes a high failure rate in the treatment of pulmonary Tuberculosis. At the same time, high treatment failure rates also increase the risk of disease and death (Rumaolat, Wiwi & Lihi, 2021)

MATERIALS AND METHODS

Method research used is quantitative with desig Study This is analytical survey research with cross-sectional design. Population in study This is all pulmonary TB sufferers undergoing treatment for more than 2 months at the Community Health Center Biau on moment study taking place. The technique used _ in handling samples is done in total sampling, namely, all sufferers of Tuberculosis undergoing lung _ treatment for 2 months at the health center Biau, totaling 45 people. Location study, namely at the Community Health Center Public health center Biau Regency Boo Central Sulawesi Province. Analysis This is held for 3 (three) months, from February until April 2023.

Study This uses test-appropriate statistics with scale data and processed use computer use SPSS application with test chi-square analysis, criteria connection done with see p-value. Test significance was done with use limit conditions (alpha > 0.05). If The P value <0.05, the association between the independent and dependent variables is meaningful. If P-value > 0.05, There is a significant relationship _ between independent and dependent variables. The variable study consists of the independent variable, obedience treatment, support family, and support power health, and the dependent variable, BTA positive conversion to pulmonary TB. Technique data collection is obtained through interviews and directly used as supplementary data for related primary data with the problem under study obtained from an agency related to Public Health Center Biau. Instruments used _ in the study This form of a questionnaire consisting _ of questions related to pulmonary TB disease on pulmonary TB sufferers and device data processing

RESULTS AND DISCUSSION

Results

Table 1. Compliance Analysis Get treatment with BTA Positive Conversion At the Biau Community Health Center Buol Regency

| Obedience Get treatment | BTA conversion | | | | Amount | | p-value |
| | No Conversion | | Conversion | | | | |
	n	%	n	%	n	%	
No Obedient	13	86.7	2	13.3	15	100	0.044
Obedient	17	56.7	13	43.3	30	100	
Total	30	66.7	15	33.3	45	100	

Source: Primary data, 2023

The table above explains that of the 45 respondents, 15 did not comply with treatment, with 13 respondents (86.7%) who did not convert to BTA and 2 respondents (13.3%) who converted to BTA. Furthermore, of the 30 respondents who adhered to treatment, 17 respondents (56.7%) did not convert to BTA, and 13 (43.3%) converted to BTA. The Chi-Square test results obtained a p-value = 0.044 (p > 0.05), meaning that there was a relationship between treatment compliance and BTA

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Positive Conversion in Tuberculosis Patients at the Biau Public Health Center, Buol Regency.

Table 2. Support Analysis Family with BTA Positive Conversion At the Biau Community Health Center , Buol Regency

Support Family	BTA conversion				Amount		p-value
	No Conversion		Conversion				
	n	%	n	%	n	%	
Not enough	26	81.2	6	18.8	32	100	0.001
Good	4	30.8	9	69.2	13	100	
Total	30	66.7	15	33.3	45	100	

Source: Primary data, 2023

The table above explains that of the 45 respondents, 32 had less family support, with 26 respondents (81.2%) not having BTA conversions and 6 respondents (18.8%) having BTA conversions. Furthermore, of the 13 respondents with good family support, 4 respondents (30.8%) did not convert to BTA, and 9 (69.2%) converted to BTA. The Chi-Square test results obtained a p-value = 0.001 (p > 0.05), meaning that there was a relationship between family support and BTA Positive Conversion in Tuberculosis Patients at the Biau Health Center, Buol Regency.

Table 3. Support Analysis Power Health with BTA Positive Conversion at the Biau Community Health Center , Buol Regency

Support Health worker	BTA conversion				Amount		p-value
	No Conversion		Conversion				
	n	%	n	%	n	%	
Not enough	6	75	2	25	8	100	0.581
Good	24	64.9	13	35.1	37	100	
Total	30	66.7	15	33.3	45	100	

Source: Primary data, 2023

The table above explains that of the 45 respondents, 8 did not receive support from health workers, with 6 respondents (75%) not having BTA conversions and 2 respondents (25%) having BTA conversions. Furthermore, of the 37 respondents who received good support from health workers, 24 respondents (64.9%) did not convert to BTA, and 13 (35.1%) converted to BTA. The Chi-Square test results obtained a p-value = 0.581 (p < 0.05), meaning there was no relationship between support from health workers and BTA Positive Conversion in Tuberculosis Patients at the Biau Community Health Center, Buol Regency

DISCUSSION
Relationship between Treatment Adherence and BTA Positive Conversion
The research results explained that of the 45 respondents, 15 did not comply with treatment, with 13 respondents (86.7%) who did not convert to BTA and 2 respondents (13.3%) who converted to BTA. Furthermore, of the 30 respondents who adhered to treatment, 17 respondents (56.7%) did not convert to BTA, and 13 (43.3%) converted to BTA. The Chi-Square test results obtained a p-value = 0.044 (p > 0.05), meaning that there was a relationship between treatment compliance and BTA Positive Conversion in Tuberculosis Patients at the Biau

Public Health Center, Buol Regency
A person's compliance is the most essential part of the disease-healing process. A patient's compliance will make it easier for the family and health workers to detect the case or disease they are suffering from early (Rakhmawati et al., 2023). In this research, patient treatment compliance in BTA positive conversion makes it easier for all components, both family and health workers, to know what is happening to the individual so that the family and health workers can act as a driving force to avoid contamination of the patient with other communities. When a patient is non-compliant, it will make the healing process more difficult; non-compliance with taking medication can result in a higher risk of recurrence than compliant patients (Christy et al., 2022).
This research is in line with that conducted by Amalia Adinda & Arini Heny Dwi, who researched an Analysis of the Compliance Level Relationship between Drink Drug Antituberculosis To Quality Life Patient Tuberculosis Lungs that state that There is a meaningful connection between obedience to drink drugs and quality life pulmonary TB patients with mark p-value (0.00).

Relationship between family support for treatment and BTA positive conversion

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The research results explained that of the 45 respondents, 32 had less family support, with 26 respondents (81.2%) not having BTA conversions and 6 respondents (18.8%) having BTA conversions. Furthermore, of the 13 respondents with good family support, 4 respondents (30.8%) did not convert to BTA, and 9 (69.2%) converted to BTA. The Chi-Square test results obtained a p-value = 0.001 (p > 0.05), meaning that there was a relationship between family support and BTA Positive Conversion in Tuberculosis Patients at the Biau Community Health Center, Buol Regency.

Family support and motivation are significant in the treatment process, where the patient constantly interacts with the family. The family is one of the factors that supports the success of each member in achieving what they dream of, including the process of treating pulmonary TB, which suffers from family members. Naturally, every family affected by a disaster must always receive positive support from all existing family members. The better the support and attention given by all members, the easier the pattern of solving problems in the family, so that the presence of all family members in every situation. is the primary key in resolving existing conflicts and difficulties. This researcher's opinion is supported by subsequent researchers who stated that family social support affects health and well-being, which function simultaneously (Ganika, 2016). Strong support is associated with reduced mortality, easier recovery from illness, cognitive function, and physical and emotional health. Family support also positively influences adjusting to stressful life events (Widyaningrum et al., 2019)

High family support will increase the patient's self-esteem, social interaction, and quality of life so that the patient will feel comfortable. The comfort felt by patients must be a priority and concern for nurses. Apart from physical, mental, and environmental mitigation, social aspects must also be considered. Family support is a primary action that must be given to patients to increase the patient's self-confidence. The high level of support provided will affect the patient's activities and social interactions. Grant said individuals spend most of their time with family and community compared to the health team (Rindy Rumimpunu, Franckie RR Maramis, 2018).

Family support is a process that occurs continuously throughout human life. Family support focuses on the interactions in various social relationships as evaluated by the individual. Family support is the family's attitude, actions, and acceptance towards its members. Family members perceive that supportive people are always ready to provide help and assistance if needed (Purba, 2020)

Relationship between support from health workers for treatment and BTA positive conversion

The study's results explained that of the 45 respondents, 8 did not receive enough support from health workers, 6 (75%) did not convert to BTA, and 2 (25%) converted to BTA. Furthermore, of the 37 respondents who received good support from health workers, 24 respondents (64.9%) did not convert

to BTA, and 13 (35.1%) converted to BTA. The Chi-Square test results obtained a p-value = 0.581 (p < 0.05), meaning there was no relationship between support from health workers and BTA Positive Conversion in Tuberculosis Patients at the Biau Community Health Center, Buol Regency.

Of the 8 respondents who did not receive support from health workers, 6 respondents did not convert to BTA because the patient felt healthy, there was a factor of access to health services, while 2 respondents converted to BTA. The critical role of health workers in various cases of disease, especially communicable and non-communicable diseases, is very urgent because treatment success comes from both internally and externally, such as support from health workers. The statement above is very accurate, but in this research, we often found that health workers needed to be made aware of the existence of officers, especially those serving infectious patients, both pulmonary TB and other contagious diseases. This is caused by several factors, such as fear of being infected, patients being incapacitated, and patients not understanding what is being conveyed by staff or patients with BPJS cards, so various cases are not accommodated well if health workers behave this way. Health workers should be counselors to recover all patients and families who come to health facilities. The better the service or behavior shown, the more comfortable the patient will be in the health facility, and they will not hesitate or feel embarrassed about expressing what they are experiencing at that time. (Muniroh et al., 2013) .

The opinion above is in line with that expressed by Mahendrani et al. (2020), who stated that a counselor is a person who assists other people in making decisions or solving a problem through understanding the facts, hopes, needs, and feelings of clients. The general aim of implementing counseling is to help people carry out the treatment and healing process for the disease they suffer from, while specifically, counseling aims to direct unhealthy behavior into healthy behavior, guide people in making decisions, and guide people to prevent the emergence of health problems during TB treatment (Mahendrani et al . , 2020).

This research is in line with a study conducted by Rani et al. (2022) regarding Analysis of Adherence to Taking Pulmonary TB Medication During the Pandemic at the Sukarami Health Center, Palembang City in 2022, stating that there is no relationship between support from health workers and Compliance with Taking Pulmonary TB Medication During the Pandemic at the Sukarami City Health Center Palembang in 2022 with a p-value (0.032).

CONCLUSION

Conclusion study This Correlation between adherence to treatment and positive BTA conversion in tuberculosis sufferers at Biau Community Health Center, Buol Regency with *p-value* = 0.044, (*p* < 0.05) There is a relationship between family support and BTA Positive Conversion in

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Tuberculosis Patients at the Biau Community Health Center, Buol Regency with *p-value* = 0.001, ($p < 0.05$) There is no relationship between support from health workers and BTA Positive Conversion in Tuberculosis Patients at the Biau Community Health Center, Buol Regency. with *p-value* = 0.581, ($p > 0.05$)

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