



Relationship between Compliance and Effectiveness of Tuberculosis Drugs in TB Patients

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Abstract

Tuberculosis (TB) is an infectious disease caused by infection with *Mycobacterium tuberculosis*. Analyzing TB treatment compliance is crucial since TB therapy involves a lengthy course of treatment that might last up to six months without interruption. since one of the things that might help TB patients recover is compliance. The purpose of this study is to ascertain how drug usage efficacy and compliance relate to TB patients at Kedawung Health Center in the Cirebon Regency. This study employs a causal quantitative approach. 35 respondents who had received category I TB therapy and had completed at least two BTA sputum exams or supporting examinations (X-rays) made up the sample, which was selected using the purposive sampling strategy. the process of gathering compliance data using the MMAS-8 questionnaire and efficacy data (BTA sputum) using SITB software throughout the first, second, fifth, and/or sixth months of TB therapy. The chi square test was employed in the analysis. Findings High category (85.7%), moderate category (8.6%), and low category (5.7%) TB patients' adherence to TB medication usage. The efficacy of TB medication usage in patients with the effective (94.3%) and ineffective (5.7%) categories. Among TB patients, there is a high correlation between adherence and the efficacy of TB medication usage. At Kedawung Health Center, there is a strong correlation between compliance and sociodemographics regarding the duration of treatment for TB drug use in TB patients, as well as a strong correlation between effectiveness and sociodemographics regarding the duration of treatment for TB drug use in TB patients.

Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* infection¹. Tuberculosis (TB) is one of the top 10 causes of death worldwide and the leading cause of death from infectious agents. Based on the Global TB Report in 2022 (2021 data), the burden of TB in the world is estimated at 10,556,328 and according to the largest region in Southeast Asia then Africa and Western Pacific. The burden of drug-resistant tuberculosis (DR-TB) in the world is estimated at 449,682, in 2021 there will be an increase in the estimated incidence of TB by 4% (in 2020), in 2020 the estimate of DR-TB is 3%².

Based on data from the Global TB Report in 2022, there are an estimated 969,000 new cases or 354 per 100,000 population and a mortality of 144,000 or 52 per 100,000 population. The achievement of TB case finding in Indonesia in 2022 was 75% or 724,309 index TB cases found from the 90% target. The incidence of TB cases between men and women is more prevalent in men by 54.9%, namely 47,053 people (West Java Health Office, 2022). Based on the West Java health profile in 2022, the TB treatment success rate was 83.6%, where the TB treatment success rate has decreased compared to 2021, which was 85.3%³.

Case Notification Rate (CNR) is the number of all TB cases treated and reported among 100,000 population in a certain area. Based on data from the Cirebon Regency health profile, the number of TB cases found in 2021 was 3,184 per 100,000 population. With a population in 2021 of 2,320,493 people, the Case Notification Rate (CNR) of all TB cases in 2021 reached 137 per 100,000. Based on data from the Cirebon district health profile in 2021, the TB success rate is 31.1%, so it can be concluded that the success rate of TB treatment has experienced a considerable decrease in cure rates compared to 2020 of 83.4%. This considerable decrease in cure rates is influenced by the willingness of patients to come to health facilities and sputum examination to determine recovery. In 2021, the willingness of patients to come and have sputum examination greatly decreased, but complete treatment was still carried out.

The World Health Organization (WHO) through the Global Burden of Disease reports that TB disease is the 13th leading cause of death and the second most deadly infectious disease in the world. In 2020, 1.5 million people died from TB (Supriyanti et al., 2023; Yuliyanti, 2020). Despite being a curable and preventable disease, as many as 10 million people are affected by TB in the world. According to WHO Southeast Asia data in 2019, an estimated 4.3 million people suffered from TB and an estimated 632,000 of them died. Indonesia is among them, and despite progress in TB treatment in Indonesia, the country still ranks third in the number of new TB cases in the world (Adytia et al., 2022; Ernia et al., 2023; Affandi, 2019).

The increase in TB cases can be influenced by the lack of patient compliance in taking TB drugs, so the role of the community is very important to achieve optimal treatment, the success of TB prevention is highly dependent on the level of public awareness and participation (Naidoo et al., 2009; Chen et al., 2020; Marahatta et al., 2020). TB disease is an infectious disease, so TB treatment compliance is an important thing to analyze, compliance is one of the potential factors to improve the recovery of TB patients (Munro et al., 2007; Pachi et al., 2013).

The results of Musfira's (2022) study entitled *The Relationship Between Adherence to Taking Medication with the Quality of Life of Pulmonary Tuberculosis Patients at the Kassi Health Center in Makassar City* showed that there was no relationship between adherence to taking medication and the quality of life of pulmonary tuberculosis patients ($p = 0.087$). However, there was a relationship in the psychological health domain ($p = 0.015$) and social relationships ($p = 0.024$). Based on the data and problems above, the researchers conducted a study on "The Relationship between Compliance and Effectiveness of TB Drug Use in TB Patients at the Kedawung Health Center, Cirebon Regency".

The objectives of this research are as follows: 1) To determine compliance with the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency; 2) To determine the effectiveness of the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency; 3) To determine the relationship between compliance and the effectiveness of the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency; 4) To determine the relationship between compliance and sociodemographics of TB drug use in TB patients at the Kedawung Health Center, Cirebon Regency; 5) To determine the relationship between effectiveness and sociodemographics of TB drug use in TB patients at the Kedawung Health Center, Cirebon Regency.

Methods

The type of observational research is a quantitative approach. Using a causal quantitative method. This research was conducted at the Kedawung Health Center, Cirebon Regency. The reason the Kedawung Health Center was chosen was because of the high number of patients, so it is expected to represent one of the health centers that provide TB treatment. In addition, the Kedawung Health Center is located in the middle of Cirebon Regency with a high level of population mobility. This research has obtained ethical approval from the Ethics Commission of the Faculty of Pharmacy, YPIB, Majalengka University 076 / KEPK / EC / II / 2024 and SK

No. 093 / Univ.YPIB / SK-01 / II / 2023. In the ethical approval process and in the implementation of these ethics, researchers maintain the confidentiality of the research, including names, addresses and medical history. Data collection was carried out retrospectively and prospectively. The sample in this study were tuberculosis patients diagnosed with tuberculosis with category 1 and who underwent TB treatment at the Kedawung Health Center, Cirebon Regency in August 2023-February 2024 and who underwent TB treatment at least 2 times, underwent sputum AFB examination or supporting examination (X-ray). This sampling technique used purposive sampling with a sample size of 35 respondents. Compliance data collection used the MMAS-8 (Morisky Medication Adherence Scale) questionnaire and data collection for sputum re-examination or other supporting examinations (X-ray) through the SITB software in the first, second, fifth, and/or sixth months of TB treatment. Data collection for TB patient compliance was carried out after data collection for treatment effectiveness (BTA sputum) was carried out by filling out the MMAS-8 questionnaire. Data entry was carried out individually to ensure the confidentiality of the process, personal data, and as an expression of respect and gratitude to the subjects for being used as research samples. Then the data was analyzed computerized, then analyzed univariately and bivariately using statistical tests, namely chi square.

Result and Discussion

There were 35 respondents who were TB patients with category 1 at the Kedawung Health Center, Cirebon Regency, who met the inclusion and exclusion criteria in this study.

Table 1. Classification of TB Patient Respondents

Variables	Frequency (Person)	Percentage
Gender		
Male	24	68,6%
Female	11	31,4%
Age		
18-38 years	16	45,7%
39-59 years	15	42,9%
60-80 years	4	11,4%
Duration of Treatment		
< 6 months	2	5,7%
6 months	33	94,3%
Last Education		
Not graduated from elementary school	1	2,9%
Elementary	10	28,6%
Junior high school	9	25,7%
High school	15	42,9%
Occupation		
Housewife	9	25,7%
Student	1	2,9%
Self-employed	7	20%
Private	18	51,4%
Income		
< 2.150.000	21	60%
2.150.000 – 5.000.000	13	37,1%
> 5.000.000	1	2,9%

Sociodemographics by Age

Based on the table above, the research data obtained as many as 35 respondents at the Kedawung Health Center, Cirebon Regency, the majority of respondents were aged 18-38 years as many as 16 respondents (45.7%). This age is included in the productive age where everyone has more high activity so that they may come into contact with many people. According to Masrifah and Andarini's research, at the age of 40 years and above, the body's immune system will decrease due to a decrease in lung function in the form of decreased strength and strength in the respiratory muscles, this is because productive people have a 5-6 times risk for the incidence of pulmonary tuberculosis. Because at this productive age, they tend to have high activity. However, this study is different from previous studies, namely that the age under 40 years is the age of the most TB sufferers (Banerji & Andersen, 1963). This could be due to the increase in smokers at a young age, sleeping past bedtime or staying up late, which reduces their immunity.

Sociodemographics by Gender

Cases of TB sufferers from 35 respondents were found to be mostly male with 24 respondents (68.6%) and female with 11 respondents (31.4%). Based on the research data, this proves that men are more vulnerable to TB disease because men often move outside the home and most are smokers.

This study is in line with the results of research conducted by Amirulah et al. (2023) which states that TB disease tends to be higher in men as many as 35 respondents (60.3%) this is due to the incidence of TB more in men because men have higher mobility than women, so the possibility of exposure to TB is greater, besides habits such as smoking and consuming alcohol which can reduce the immune system (Dotulong et al., 2015). Women tend to maintain their health more than men. Men, in addition to smoking, can also be caused by high outdoor activities that provide opportunities for other free radicals that affect the immune system so that they are easily infected with tuberculosis.

Sociodemographics by Length of Treatment

In the table above, it is known that 35 respondents with a length of treatment of 6 months were the most common results with 33 respondents (94.3%). The length of TB treatment is the period of time TB patients take treatment which aims to prevent recurrence or resistance to TB drugs. This is supported by research conducted by Musfira (2022) that the length of treatment carried out by TB sufferers must be carried out to completion because TB germs can reactivate if there is a drug withdrawal, besides that the length of treatment affects the quality of life of pulmonary TB sufferers. The percentage of the length of treatment tends to be homogeneous because the samples or research subjects were patients who had undergone treatment for at least 5 months.

Sociodemographics Based on Last Education

The distribution of questionnaires that had been carried out on 35 respondents at the Kedawung Health Center, Cirebon Regency, found that the majority of respondents had a high school education with 15 respondents (42.9%) and the fewest respondents did not graduate from elementary school with 1 respondent (2.9%). This level of education is used to determine a person's level of knowledge of the importance of recovery in TB disease. This research is in line with that conducted by Absor et al. (2020), stating that individuals who have a high level of education will increasingly realize that health is an important thing. The compulsory school age in Indonesia is 9 years old so that the junior high school level has been exceeded. Education will affect his knowledge, so that he can wisely overcome his health problems.

Sociodemographics by Occupation

This study found that the group of respondents with the category of employment type was the majority with private jobs with 18 respondents (51.4%), while the least number of respondents with student jobs was 1 respondent (2.9%). It can be concluded that private jobs have a higher

risk of being infected with pulmonary TB patients because they have more direct contact with many people. This study is in line with the results of research conducted by Khoiroh Muflihaturun (2022) which states that there is a relationship with the level of activity that allows easier transmission of TB germs from people with TB. Work affects the number of sufferers because people who work tend to be in places with sufferers or TB suspects more. Work can also affect a person's compliance in taking medication and maintaining their health.

Sociodemographics by Income

The research data obtained from 35 respondents at the Kedawung Health Center, Cirebon Regency, found that the majority of respondents with an income level < 2,150,000 were 21 respondents (60%) and the least respondents with an income level > 5,000,000 were 1 respondent (2.9%). This study proves that most respondents with income below the minimum wage but in conducting TB treatment are included in the high compliance category due to the free cost of TB treatment and a high sense of wanting to recover. The need to maintain health is inseparable from a person's costs and income. The cost of purchasing nutritious food, vitamins, minerals or purchasing immunomodulators is not a small cost. This requires sufficient income and is often considered a secondary or even tertiary need

This research is in line with research conducted by Maulidya et al. (2017) that the highest income level is <1,500,000, which means that the majority of income is still below the minimum wage.

Table 2. Compliance Level of TB Patients at Kedawung Health Center, Cirebon Regency

Compliance Level	Frequency (Person)	Percentage
High	30	85,7%
Medium	3	8,6%
Low	2	5,7%

Based on the table above for the results of the questionnaire recapitulation value as many as 30 patients (85.7%) compliance with the use of TB drugs in TB patients undergoing treatment is classified as high, while the level of moderate compliance is 3 respondents (8.6%) and the level of low compliance is 2 respondents (5.7%). Based on the researcher's assumption, there were several respondents who did not read the details at the question point, this was because there was one question whose answer value was different from other questions.

This is in line with research conducted by Melia Puspa Putri H, 2023 with the title "Study of Analysis of the Level of Adherence to Therapy in Adult Lung TB Patients in the TB Poly UPT Pasundan Puskesmas Bandung City". with the results of the study showing as many as 6 people with high levels of compliance (16%), moderate compliance as many as 21 people (55%) and low compliance as many as 11 people (29%). So it can be concluded that the results of the correlation test between demographic data variables and the level of compliance found that there was no relationship between age, gender, education and occupation, because it had a p-value of 0.983; 0.257; 0.098 and 0.49 respectively.512.

Table 3. Recapitulation of Sputum Recheck Results in TB Patients

Effectiveness	Frequency (Person)	Percentage
Effective	33	94,3%
Ineffective	2	5,7%

Table 3 shows the results of a study of 35 respondents in TB patients who have taken TB treatment and rechecking sputum in months 1, 2, 5 and 6 as well as X-ray examinations. The initial treatment conversion result is a microscopic examination of M.tb in the second month of treatment which is declared with negative results until the sixth month sputum recheck, it can be concluded that the patient has been declared cured or successful treatment for 6

months¹³. In a study conducted by Netty et al. (2018) on the relationship between the role of health workers and family support with the level of compliance with taking medication in patients with BTA positive pulmonary tuberculosis (TB) in the work area of UPT Puskesmas Martapura 1 in 44 respondents with the results showed that as many as 36 respondents (81.8%) stated the role of health workers with a good category in carrying out their duties and as many as 8 respondents (18.2%) stated the role of health workers with a category less in carrying out the task of treating pulmonary TB. The results of the chi square test analysis obtained a p-value = 0.001 < α = 0.05 at a confidence level of 95%, indicating that there is a relationship between the role of health workers and the level of compliance with taking BTA positive pulmonary TB medication in the work area of UPT Puskesmas Martapura 114.

Table 4. Chi Square Test Results of the Relationship between Adherence and Effectiveness of TB Drug Use

Compliance	Effectiveness		Total	OR (CI 95%)	p-value	Correlation
	Ineffective	effective				
Not Compliant	2	0	2	16.500	0,002 (Meaningful)	0,707 (Strong)
Compliant	0	33	33			

Based on table 4, the p-value of 0.002 indicates that the hypothesis in this study is accepted with a strong relationship strength. So it can be concluded that there is a relationship between compliance and the effective use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency. Because the p-value obtained is 0.002 < 0.05, it can be concluded that there is a relationship between compliance and the effective use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency with a strong relationship strength. Based on the results of research on 35 respondents in TB patients who have taken TB treatment and rechecking sputum in months 1, 2, 5 and 6 as well as X-ray examination. The result of the initial conversion of treatment is a microscopic examination of M.tb in the second month of treatment which is declared with negative results to rechecking sputum in the sixth month, it can be concluded that the patient has been declared cured or successful treatment for 6 months¹³. In a study conducted by Netty et al. (2018) on the relationship between the role of health workers and family support with the level of compliance with taking medication in patients with BTA positive pulmonary tuberculosis (TB) in the work area of UPT Puskesmas Martapura 1 in 44 respondents with the results showed that as many as 36 respondents (81.8%) stated the role of health workers with a good category in carrying out their duties and as many as 8 respondents (18.2%) stated the role of health workers with a category less in carrying out the task of treating pulmonary TB. The results of the chi square test analysis obtained a value of p = 0.001 < α = 0.05 at a confidence level of 95%, indicating that there is a relationship between the role of health workers and the level of compliance with taking BTA positive pulmonary TB medication in the work area of UPT Puskesmas Martapura 114.

Table 5. Chi Square Test Results of the Relationship between Adherence and Effectiveness Based on Sociodemographics of TB Drug Use

Variables	Compliance		OR	p-value	Correlation	Effectiveness		OR	p-value	Correlation
	Non-compliant	compliant				Ineffective	Effective			
Age				1,000 (Not Meaningful)	0,154 (Very Low)				1,000 (Not Meaningful)	0,154 (Very Low)
≤ 45 years	2 (8%)	23 (92%)	0,920	1,000 (Not Meaningful)	0,154 (Very Low)	2 (8%)	23 (92%)	0,920	1,000 (Not Meaningful)	0,154 (Very Low)
≥ 45 years	0 (0%)	10 (100%)				0 (0%)	10 (100%)			
Gender				1,000 (Not Meaningful)	0,164 (Very Low)				1,000 (Not Meaningful)	0,164 (Very Low)
Male	2 (8,3%)	22 (91,7%)	0,917	1,000 (Not Meaningful)	0,164 (Very Low)	2 (8,3%)	22 (91,7%)	0,917	1,000 (Not Meaningful)	0,164 (Very Low)
Female	0 (0%)	11 (100%)				0 (0%)	11 (100%)			
Duration of Treatment				0,002 (Meaningful)	0,707 (Strong)				0,002 (Meaningful)	0,707 (Strong)
< 6 months	2 (100%)	0 (0%)	16,500	0,002 (Meaningful)	0,707 (Strong)	2 (100%)	0 (0%)	16,500	0,002 (Meaningful)	0,707 (Strong)
6 months	0 (0%)	33 (100%)				0 (0%)	33 (100%)			
Last Education				0,229 (Not Meaningful)	0,246 (Low)				0,229 (Not Meaningful)	0,246 (Low)
≤ SMP			1,133	0,229 (Not Meaningful)	0,246 (Low)	0 (0%)	18 (100%)	1,133	0,229 (Not Meaningful)	0,246 (Low)
≥ SMP						0 (0%)	18 (100%)			

	0 (0%) 2 (11,8%)	18 (100%) 15(88,2%)				2 11,8%)	15(88,2%)			
Employment				1,000 (Not Meaningful)	0,042 (Very Low)	0 (0%) 2 (5,9%)	1 (100%) 32 (94,1%)	1,063	1,000 (Not Meaningful)	0,042 (Very Low)
Not Working	0 (0%)	1 (100%)								
Working	2 (5,9%)	32(94,1%)								
Income				1,000 (Not Meaningful)	0,050 (Very Low)	1 (4,8%) 1 (7,1%)	20 (95,2%) 13 (92,9%)	0,650	1,000 (Not Meaningful)	0,050 (Very Low)
≤ UMK	1 (4,8%)	20 (95,2%)								
≥ UMK	1 (7,1%)	13 (92,9%)	0,650							

Relationship between Adherence and Sociodemographics Based on Gender

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with very low relationship strength. And the results of the odd ratio value of 0.917 times have a chance of compliance with gender. This is in line with research conducted by Amran et al. (2021) that men are more susceptible to exposure to tuberculosis disease, because men often move outside and most TB patients are smokers.

Relationship between Adherence and Sociodemographics by Age

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with very low relationship strength. And the result of the odd ratio value of 0.920 means that age has a 0.920 times chance of influencing compliance with taking TB medication. This is in line with research conducted by Ahdiyah et al. (2022), it can be proven that most tuberculosis sufferers are suffered at a productive age where at this age people who carry out these activities without maintaining their health besides that the main factor is more attacking active smokers and hard workers. Age influences mindset, and this will influence their compliance in taking medication

Relationship between Adherence and Sociodemographics Based on Duration of Treatment

Based on the table above, 0.002 means that there is a significant relationship because the sig value < 0.05 with a strong relationship strength. And the result of the odd ratio value of 16.500 means that the length of treatment has a 16.500 times chance of influencing compliance with taking TB medication. This is in line with research conducted by Khoiroh Muflihatun (2022) that the length of TB treatment is the period of time TB patients take treatment which aims to prevent recurrence and unsuccessful treatment.

According to the researcher's assumption, there were 2 TB patients who underwent the treatment stage within 3 months, this was due to the lack of compliance with the use of TB drugs so that when checking sputum again in month 2, the results should have been negative but due to non-compliance with the use of TB drugs, the patient still had a positive

Relationship between Adherence and Sociodemographics Based on Last Education

Based on the table above, 0.229 was obtained, meaning that there was no significant relationship because the sig value > 0.05 with low relationship strength. And the results of the odd ratio value of education 1.133 times the chance of compliance with the use of TB drugs is lower than patients with education ≥ junior high school. Individuals who have a high level of education will increasingly realize that health is the most important thing. However, in this study with the last education ≤ junior high school is greater than ≥ junior high school. This is because the majority of respondents are rural people whose average occupation is a farmer and trader.

Relationship between Adherence and Sociodemographics Based on Occupation

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with very low relationship strength. And the results of the odd ratio value of respondents who do not work are 1.063 times likely to adhere to the use of TB drugs. The type of work determines the risk factors faced, work in a dusty environment will increase the risk of respiratory tract disorders.

Relationship between Adherence and Sociodemographics Based on Income

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with very low relationship strength. And the results of the odd ratio value of income 0.650 times the chance of compliance with the use of TB drugs. This study is also in line with Amran's et al. (2021) research that free medical fees have a positive impact on the patient's psychology, because tuberculosis usually attacks middle to lower class people where the average monthly income is also small.

Relationship between Effectiveness and Sociodemographics by Age

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with a very low relationship strength. With an odd ratio value of 0.920, it means that age has a 0.920 times chance of getting effective results on negative BTA. It is possible that the immune system at an unproductive age (>50 years) generally decreases so that it is very vulnerable to various diseases, one of which is pulmonary TB.

Relationship between Effectiveness and Sociodemographics by Gender

Berdasarkan tabel diatas obtained 1.000 means there is no significant relationship because the sig value > 0.05 with very low relationship strength. With an odd ratio value of 0.917, it means that gender has a 0.917 times chance of getting effective results on negative BTA. This is in line with research conducted by HD & Indriati (2015) that the results of the analysis obtained a sig value of $0.237 > 0.05$.

Effectiveness and Sociodemographic Associations Based on Length of Treatment

Based on the table above, 0.002 means that there is a significant relationship because the sig value < 0.05 with a strong relationship strength. With an odd ratio value of 16.500, it means that the length of treatment has a 0.917 times chance of getting effective results on negative BTA. This study is in line with that conducted by Maida Djatmiko et al. (2023) that pulmonary TB patients showed negative results in the 2nd and 5th month of treatment so that it can be concluded that OAT treatment is effective¹⁹. TB patients who have been successful in this study are TB patients with BTA (+) examination who have undergone a 6-month treatment period and there is a change in sputum reexamination to BTA (-).

In this study there were 2 respondents who were less than 6 months of treatment, this is because TB patients are not complete, resulting in TB germs resistant to consumed TB drugs called MDR (Multi Drug Resistance). Therefore, it is necessary to increase or patient compliance with taking TB drugs.

Relationship between Effectiveness and Sociodemographics Based on Last Education

Based on the table above, 0.229 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with low relationship strength. With an odd ratio value of 1.133, it means that education respondents have a 1.133 times chance of getting effective results on negative BTA. This is in line with research conducted by Maulidya et al. (2017) with a p-value of $0.645 > 0.05$, it can be concluded that there is no relationship between education and the success of pulmonary TB treatment.

In the opinion of researchers, knowledge is one of the factors that can influence the incidence of TB disease. If someone has good knowledge related to TB, they tend to avoid factors that can trigger the occurrence or transmission of TB disease. Providing education to TB patients or Medication Assistants has an impact on the level of patient compliance in taking medication

Relationship Effectiveness and Sociodemographics by Occupation

Based on the table above, 1.000 is obtained, meaning that there is no significant relationship because the sig value > 0.05 with very low relationship strength. With an odd ratio value of

1.06, it means that respondents who do not work have a 1.06 times smaller chance of getting effective results on negative BTA than respondents who work. This is in line with research conducted by Ruditya (2015) that the results of the chi-square test analysis obtained a value of $1.00 > 1.00$, which means that there is no relationship between the occupation of pulmonary TB patients and compliance with sputum examination during treatment.

Relationship between Effectiveness and Sociodemographics Based on Income

Based on the table above, the analysis of the chi square test results by reading the Fisher's Exact Test results obtained 1.000 means that there is no significant relationship because the sig value > 0.05 with very low relationship strength. With an odd ratio value of 0.650, it means that income has a 0.650 times chance of getting effective results on negative BTA. This is in line with research conducted by Ruditya (2015) that the results of the chi-square test analysis obtained a value of $0.45 > 0.05$, it can be concluded that there is no relationship between the income level of pulmonary TB patients and compliance with sputum testing during treatment.

Conclusion

Based on the research entitled "Relationship between Compliance and Effectiveness of TB Drug Use in TB Patients at the Kedawung Health Center, Cirebon Regency", it can be concluded that: 1) Compliance with the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency with high categories (85.7%), moderate compliance (8.6%) and low compliance (5.7%); 2) The effectiveness of the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency with the effective category (94.3%) and the ineffective category (5.7%); 3) There is a relationship between compliance and the effectiveness of TB drug use in TB patients at the Kedawung Health Center, Cirebon Regency with a strong relationship strength; 4) There is a relationship between compliance and sociodemographics on the length of treatment for the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency with a strong relationship strength; 5) There is a relationship between effectiveness and sociodemographics on the duration of treatment for the use of TB drugs in TB patients at the Kedawung Health Center, Cirebon Regency with a strong relationship strength.

As for suggestions in the implementation of this study, it is hoped that similar and more in-depth research on TB patient compliance with the use of TB drugs in different agencies and involving more respondents, it is hoped that in addition to conducting research on compliance with the use of TB drugs, it is also expected to conduct research on the use of TB drugs research on knowledge of the use of TB drugs, it is hoped that further research will interpret in the form of video shows related to the use of TB drugs.

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