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Factors Affecting Non-Compliance of Patients Taking Tuberculosis Medication in The Working Area of Health Services of Liquiça District, Timor-Leste, 2018

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Abstract

Introduction: *Non-adherence to taking tuberculosis medication is a patient who is unable or refuses to take tuberculosis medication based on a doctor's prescription, such as: taking inconsistent medication, inadequate clinic visits, inadequate dot program, refusing to take medication. Of the 1/2 million people diagnosed with mdr-tuberculosis, the rate of non-adherence to treatment is difficult to assess and it is estimated that more than a quarter of tuberculosis patients fail to complete treatment within 6 months.* ***Method:*** *The method used quantitatively with the cross-sectional study approach, the population is all tuberculosis patients who run the dots program including those who fail treatment, relapse, and return after defaulted with the age of more than >14 years as many as 142 patients, samples as many as 105. Data collection techniques use nominally scaled questionnaires.* ***Result and Discusion:*** *The test results of univariate and bivariate analysis of chi-square, bivariate analysis using a significant alpha value of 5% (α=0.05). The results of bivariate analysis showed that there was a significant influence between education level (rp = 3,420), knowledge level (rp = 3,052), family support (rp = 0,003), length of treatment (rp = 3,149), on the patient's inadequacy in taking tuberculosis drugs.* ***Conclusion:*** *In conclusion, the results of this study are the level of education, level of knowledge, family support, duration of treatment affect the non-compliance of patients taking tuberculosis drugs.*

Keyword: Education; Knowledge; Family Support; Duration of Treatment; Drug Side Effects; Non-Adherence; Tuberculosis;

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Introduction

Non-adherence to taking tuberculosis medication is a patient who is unable or refuses to take prescription based on tuberculosis medication with examples such as: (a) taking inconsistent medication, (b) inadequate clinic visits, (c) inadequate DOT program, and (d) refusal to take medication (Vianitati, Herminsih, &; Wida, 2021)

Factors associated with patient adherence to tuberculosis treatment include: (1) the patient's own factors, concerning matters such as age, race, gender, education level, and socioeconomic status, (2) factors in the implementation of treatment, specifically such as *Skills* The personality of a doctor can influence patients on tuberculosis treatment measures, satisfactory results, intensive problems of medical personnel, (3) factors of clinic facilities and other factors such as, patients long waiting, inadequate working hours at the clinic, very slow health service activities, *travel cost*, (4) treatment regimen, drug side effects, changes in diet and own disease conditions (Coley, 1999)

Half a million people are diagnosed with MDR-tuberculosis, with a large rate of treatment non-adherence difficult to assess, but it is estimated that more than a quarter of tuberculosis patients fail to complete treatment within 6 months. (WHO; 2008) at (Hidayathillah, 2016)

More detailed *The Center of Disease Control* Timor-Leste (2010) reported that in 2010 the discovery of new cases with the number of 4,824 people with relapse cases 40 people or 0.82%, failed treatment 8 people or 0.16%, *return after defaulted* 8 people or 0.66% and in 2011 with relapse cases 38 people or 0.86% failed treatment 14 people 0.31%, *Return after defaulted* 17 people 0.38%, then in 2012 for cases of relapse 40 people (1.04), failed treatment 4 people (0.10%), *return after defaulted* 5 people (0.13%). On the other hand, it was also reported that the results of treatment of tuberculosis patients with *smears* (+) 1,546 people, of which 16 people (3.03%), died 54 people (3.49%), *returned after defaulted* 71 people (4.59%), *transferred out* 35 people (2.26%), recovered 1,244 people (80.46%), complete treatment 126 (8.15%).

Successful treatment with the application of strategies *Directly Observed Treatment Short-course* (DOTS) is the standard short-term treatment for all tuberculosis cases with appropriate case management, including direct supervision of treatment by a drug swallowing supervisor (Inayah &; Wahyono, 2019). Eka Fitriani (2013) at (Fitri, 2018) Stating factors related to the success of treatment of tuberculosis patients is that one's level of education can determine the success of treatment, the higher one's level of education the better one's knowledge of adherence to complete treatment within 6 months and vice versa.

The regularity of taking medication is inseparable from the factors of health workers, families, and includes community support for tuberculosis patients in carrying out good treatment. In addition, the role factor of the Drug Swallowing Supervisor (Drug Taking Supervisor) also has an important role in supporting tuberculosis patients in the regularity of taking drugs (Suryana &; Nurhayati, 2022). Drug Supervisors can come from family and non-family, Drug Supervisors who come from families have greater

emotional ties and responsibilities to provide good support and guidance to patients than non-family (Unier, Saravan, & Astuti, 2017)

Family support involves emotional attention, assistance and affirmation, will make tuberculosis patients less lonely in dealing with situations and can empower tuberculosis patients during the treatment period by continuing support, such as reminding patients to take medicines and being sensitive to tuberculosis patients if they experience side effects from tuberculosis drugs (HD, 2014)

The results of previous research by Martins, et al, (2008) stated that in Timor-Leste there are several main factors that affect incomplete treatment measures, namely: (1) the use of traditional medicine; (2) economic barriers; and (3) geographical circumstances that make it impossible (Martins, Grace, & Kelly, 2008). While research by Silva, et al (2011), found that factors of knowledge, attitudes, government policies providing free medicines and socio-economic factors have a relationship with incomplete treatment measures. While Silva's research (2016) found risk factors that increase the influence on drug withdrawal are: (1) feeling cured, (2) traditional treatment, (3) boredom and besides that also found factors that are not a risk of drug withdrawal such as; Side effects of tuberculosis drugs, range of yankes, role of family, surveillance of Dots, availability of tuberculosis drugs and mingration as factors *confounding* is a risk factor, in conclusion DOTS supervision and inadequate drug availability, a risk of drug withdrawal in pulmonary tuberculosis patients in Timor-Leste.

Based on National Data *Menisterio da Saude* Timor-Leste *Case Finding Report* (2017) reported in 2015 patients who recurred amounted to 73 patients and *dropped out* as many as 10 patients, in 2016 patients who recurred amounted to 126 patients and *Drop Out* 13 patients and in 2017 patients who recurred amounted to 115 patients and *Drop Out* as many as 25 patients. Meanwhile, especially *Municipio* Liquiça data in 2015 there were 2 relapsing tuberculosis patients, in 2016 there were 11 relapsing patients, and in 2017 there were 6 relapsing patients and *3* patients dropping out. In relation to patients who have been treated and dropped out of treatment for 2 months or more with positive BTA, the problem that arises from recurrence and *drop out* of tuberculosis patients is drug resistance, namely the emergence of *drug-resistant strains* during chemotherapy and the patient is a source of infection for uninfected individuals.

The failure of treatment is not the responsibility of tuberculosis patients, but this can affect the behavior of tuberculosis patients in completing their treatment, meaning that patients do not comply with medication treatment (Dewanty, Haryanti, &; Kurniawan, 2016). Inadequate treatment failure is caused by the patient's ignorance in the use of inappropriate drug guidelines, termination of the medication guidance schedule too soon, negligent behavior in taking medication or drug withdrawal.

There are several factors that influence non-adherence in medication treatment, including patient characteristics, education, knowledge, family support, health service outcomes, influence between the Drug Swallowing Supervisor (Drug Taking Supervisor) and the patient, duration of treatment, drug side effects and the health service delivery system (Zahroh, 2016).

Method

The type of research used is quantitative research with *Cross Sectional* approach studies. The study population was all BTA (+) pulmonary tuberculosis patients who had run the *Dots* program as many as 142. The sample of 105 respondents was patients aged ≥ 14 years who were male and female, and the technique used was *purposive sampling.*

The variables in this study were education level, level of knowledge, family support, length of treatment, drug side effects, drug supervisors, and non-adherence of patients taking tuberculosis drugs. The primary data collection technique in this study was carried out by the researcher himself with the help of 6 friends using questionnaires interviewed to respondents and secondary data obtained from the list of pulmonary tuberculosis patient treatment cards, the results of the evaluation of pulmonary tuberculosis program activities and health profiles. Data analysis using *Chi square test* and 2x2 contingency coefficient to analyze prevalence *ratio* (PR).

Result and Discussion

The results of the study obtained by researchers from the *Município* Liquiça health service work area, it was known that there were 105 respondents, with the characteristics of respondents of productive age 15-55 years as many as 51 people (48.6%) and respondents aged 56-75 years as many as 54 people (51.4%), respondents who were male as many as 61 people (58.1%) and those who were female as many as 44 people (41.9%), respondents with the type of work as a farmer as many as 83 people (79.0%) and the type of work as civil servants / entrepreneurs as many as 22 people (21.0%).

Table 1

The Effect of Education on Non-Adherence of Tuberculosis Patients Taking Medication in the *Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Education				
High	29 (53,7)	25 (46,3)	54 (51,4)	3,424
Low	8 (15,7)	43 (84,3)	51 (48,6)	
Total	**37**	**68**	**105**	

Source: Primary Data Analysis of Respondent Research

Education in table 1 is divided into 2, namely the level of higher education and low education, high education if respondents with the last education are high school and college or academic. The education of respondents is said to be low if the last respondent's education is elementary, junior high and not in school.

The results of the data obtained showed that from a total of 37 respondents who were obedient to taking tuberculosis drugs, from 53.7% with higher education more than 9 years, and 15.7% respondents who had low education or less than 9 years. While 68 respondents who were not compliant taking tuberculosis drugs, respondents who were

highly educated for more than 9 years amounted to 46.3% and most respondents who were poorly educated or less than 9 years who were not compliant took tuberculosis drugs by 84.3%. The results of the Chi-Square statistical test between education level and non-adherence to taking tuberculosis drugs during treatment obtained *p value* = 0.000 < 0.05, with *a Prevalance Ratio* (RP) value = 3.424 that is, there is an influence of education level with non-compliance of patients taking tuberculosis drugs in the *Município* Liquiça health service work area.

A person's non-compliance with taking tuberculosis drugs can be influenced by the level of education and the lower the level of education, the less knowledge a person will have, if the higher the level of education and the more information a person will get and have a better ability to carry out tuberculosis drug treatment in accordance with the doctor's rules. Non-adherence to taking tuberculosis drugs is still due to the low level of education among the educated or illiterate, elementary and junior high, with low education will determine a person's behavior towards health with relatively low, so that awareness is still relatively low in carrying out irregular and complete treatment. A person's level of education can also affect the type of work and end up at the economic level in a family.

Research conducted in the Município Liquiça health service work area shows that respondents with a higher education level of more than 9 years, namely high school and college, more than respondents with low education less than 9 years, namely Not in school, not finishing elementary school, elementary and junior high school, with good education will obtain many sources of information, with the information obtained will affect one's behavior, especially on one's character or attitude to play a role in the development of health development. In this study, even with the high level of education of a person and the number of sources of information, it still has an impact on the low ability of individuals to comply with taking tuberculosis drugs according to the rules. In the research of Agustin I, et al (2012) showed that the level of education had a significant effect on the failure of category two tuberculosis treatment, because the *p-value* <0.05.

In general, a person's level of education will affect the level of knowledge so that it has an impact on how to behave in daily life, especially in behaving clean and healthy. Higher levels of education do not necessarily always influence the emergence of attitudes or actions that are in accordance with the expected goals (Zanani, 2009). According to Notoatmodjo 2003, education is a basic human need that is needed to develop oneself and increase one's intellectual maturation. With this intellectual maturity can affect a person's insights and thoughts, both in visible actions and in the way decisions are made. The level of education is also one of the factors that influence a person's perception to be more receptive to new technological ideas.

The results of research in the Município Liquiça health service work area showed that there was an influence between the level of education and non-compliance of patients taking tuberculosis drugs during treatment. The results showed that most of the non-compliant respondents were poorly educated, so in this study respondents who were obedient to taking tuberculosis drugs during treatment had a high level of education.

Circumstances in accordance with existing theories state that the higher a person's level of education, the information obtained by a person will affect the way of behaving better. According to research conducted by Ernawatyningsih, Erni., et al. 2009, stated that low education affects non-compliance in treatment in tuberculosis patients. Most respondents stated that they have the awareness to recover quickly.

Regarding the situation in the field of respondents who are poorly educated; Not going to school, not finishing elementary, elementary and junior high school, with the level of education can affect their motivation adherence to undergoing treatment by taking tuberculosis drugs irregularly, this is related to the inability to obtain information so they are unable to communicate, so they feel easy to ignore taking tuberculosis drugs and think they are healthy do not need to take medicine.

Table 2

The Effect of Knowledge on Non-Adherence of Tuberculosis Patients Taking Medicine in the *Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Knowledge				
Good	28 (52,8)	25 (47,2)	53(50,5)	3,052
Not Good	9 (17,3)	43 (82,8)	52(49,5)	
Total	**37 (35,2)**	**68 (64,8)**	**105 (100)**	

Source: Primary Data Analysis of Respondent Research

In table 2, above shows that knowledge is good and knowledge is not good. The respondent's knowledge is good if the respondent knows, understands and is able to apply and the respondent's knowledge is not good, then the respondent does not know, does not understand and is unable to apply it. The results of the analysis showed that of 37 respondents with good knowledge, 52.8% were obedient to tuberculosis drugs, respondents with poor knowledge 17.3% and were obedient to taking tuberculosis drugs in accordance with doctor's recommendations and established rules. 68 respondents with good knowledge, 47.2% did not comply with taking tuberculosis drugs and respondents with poor knowledge 82.8% did not comply with taking tuberculosis drugs and did not comply with recommendations and rules.

The results of the chi-square test between knowledge and patient non-compliance taking tuberculosis drugs and obtaining *p value* = 0.000 ($p < 0.05$), with *a Prevalance Ratio* (RP) value = 3.052 that is, there is an influence of knowledge with patients not adhering to taking tuberculosis drugs in the Município Liquiça health service work area.

Poor patient knowledge in non-compliance of patients taking tuberculosis drugs is a bad thing to break the chain of transmission of tuberculosis mycobacterium germs by taking irregular drugs according to a doctor's prescription.

With the results of this study, the patient's knowledge about tuberculosis disease is mostly obtained from the results of experience obtained through the eyes and ears of the patient while undergoing treatment with the admonition of taking tuberculosis drugs, so

that after the patient takes tuberculosis medication treatment has been completed, tuberculosis patients automatically gain high knowledge about the patient's compliance with taking tuberculosis drugs, Although most have low education.

The results of this study are in accordance with the results of research by Agustin I, et al (2012), it was found that the influence of the variable level of knowledge of pulmonary tuberculosis patients on the failure of category two tuberculosis treatment was obtained results (p = 0.002). The results of the analysis showed that the variable level of knowledge of tuberculosis patients with high has a significant effect on the failure of category two tuberculosis treatment, because *the p-value* <0.05 than the low level of knowledge.

Notoatmodjo; 2007, that knowledge is the result of knowing and this happens after a person senses a certain object. Sensing occurs through the five senses of humans, namely; senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained from the eyes and ears.

Table 3

The Effect of Family Support on Non-Adherence of Tuberculosis Patients Taking Medication in *the Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Family Support				
Support	28 (57,1)	21 (42,9)	49 (46,7)	3,556
Not Supported	9 (16,1)	47 (83,9)	56 (53,3)	
Total	**37 (35,2)**	**68 (64,8)**	**105 (100)**	

Source: Primary Data Analysis of Respondent Research

Family Support in table 3 above shows that there are tuberculosis patients who receive family support, there are also tuberculosis patients who do not receive family support. Family support is usually in the form of emotional support, appreciation support, information support, instrumental support and overall family support, of the 37 respondents there were 57.1% who received family support and were obedient to taking tuberculosis drugs and 16.1% did not receive family support and were obedient to taking tuberculosis drugs according to a doctor's prescription, while 68 respondents there were 42.9% there was family support and did not comply with taking tuberculosis drugs, While 83.9% were not supported by family and did not comply with taking tuberculosis drugs.

The results of the chi-square test between family support and patient non-compliance taking tuberculosis drugs and obtained p *value value* = 0.000 (p < 0.05), with *a Prevalance Ratio* (RP) value = 3.556 that is, there is an effect of family support with non-compliance of patients taking tuberculosis drugs in the Município Liquiça health service work area.

Family support is a supporting factor to encourage tuberculosis patients who are full of care and sympathy for patients to take tuberculosis drugs regularly for 6-8 months, family support can be in the form of information, advice, motivation, prepare logistical

needs, costs, transportation and always listen to patient complaints during the patient's treatment taking medication will occur the risk of tuberculosis transmission. If the family does not provide support it can make it difficult for patients to make decisions in adherence to taking tuberculosis drugs, it can lead to relapse, higher failure

In Martia Dewi's research, Nursiswati, Ridwan (2009), explained that emotional support is the main support system that helps in direct care for every healthy and sick situation, appreciation support has a role in teaching in accordance with the norms applied by the family, instrumental support according to Caplan in Friedman (1998) in Martia Dewi, Nursiswati, Ridwan (2009) suggests that the family is a source of practical and concrete help, Information support in the treatment of tuberculosis can be obtained from explanations of health workers, leaflets, television, newspapers, and others. This information aims to improve patient compliance in taking medication regularly and on time and dose. The information provided to patients is useful to increase the client's insight to be obedient in taking medicine.

Information support is higher if the information given to patients is understood and followed by patients. The information provided by the family is conveyed with characteristics such as tone of speech, voice inflection, speed, length of time, and pauses in speech all contain meaning. These characteristics make it easier for patients to understand the content of the information provided so that if the family provides accurate and understandable information, patients feel always cared for. Support in the form of attention can affect the patient's adherence to treatment.

The achievement of an optimal degree of health in family life is in fact achieved by the efforts of each family member, not achieved by the cooperation of all members. In reality, not all families can understand the patient's situation and the needs that the patient needs. Through a good approach, psychologically the family is able to ease the burden felt by the patient.

Table 4

The Effect of Treatment Duration with Non-Adherence of Tuberculosis Patients Taking Medication in *the Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Duration of Treatment				
1 – 6 Months	28 (54,9)	23 (45,1)	51 (48,6)	3,294
> 6 Months	9 (16,7)	45 (83,3)	54 (51,4)	
Total	**37 (35,2)**	**68 (64,8)**	**105 (100)**	

Source: Primary Data Analysis of Respondent Research

The duration of treatment in table 4 above shows that there are patients taking tuberculosis drugs with a duration of coronation of 1-6 months, there are also patients taking tuberculosis drugs with a duration of tuberculosis treatment of >6 months. Tuberculosis patients with a duration of treatment of 1-6 months who were adherent to

taking tuberculosis drugs were 54.9% and patients who were not adherent to taking tuberculosis drugs were 48.6%. While patients with a duration of treatment taking tuberculosis drugs >6 months there were patients who were 16.7% compliant and patients who were not compliant 83.3%.

The results of the chi-square test between the duration of treatment and the non-compliance of patients taking tuberculosis drugs and obtained *a p value* = 0.000 ($p < 0.05$), with a *Prevalance Ratio* (RP) value = 3.294 that is, there is an effect of treatment duration with non-compliance of patients taking tuberculosis drugs in the Município Liquiça health service work area.

In the research of Chilyatiz Zahroh, Subai'ah (2016), thetreatment of tuberculosis at the Tambelangan Health Center showed that of the 39 respondents, most of the 69.2% were undergoing category 1 tuberculosis treatment, which was 2-6 months, almost half of them were undergoing category 2 tuberculosis treatment, which was 7-8 months, and a small percentage of 10.3% were undergoing tuberculosis treatment Category 3, which is >8 months, shows that the majority of tuberculosis patients are patients with new cases so that most patients undergo category 1 tuberculosis treatment (2-6 months).

According to Widoyono (2011), pulmonary tuberculosis treatment uses anti-tuberculosis drugs (OAT) with *the Direktly Observed Treatment* (DOTS) method with category I (2HRZE/4H3R3) for pulmonary tuberculosis patients. Category II (2 HRZES/HRZE/5 H3R3E3) for repeat patients (patients with failed category I treatment or relapsing patients). Category III (2HRZ/4H3R3) for new patients with BTA (-), Ro (+). Inserts (HRZE) are used in addition to the final examination of the intensive stage of treatment with category I or category II found BTA (+).

The duration of tuberculosis treatment with a period of 1-6 months is a treatment program for new cases with positive sputum, in this phase is the initial stage for 2 months intensively with 2HRZS (E) treatment the drug is taken every day regularly or intensively 60 times, this regimen is called kompak II and then in the advanced stage given munim drug treatment three times a week for 4 months with 4H3R3 drug the drug is given to the patient Tuberculosis taken three times a week as much as 54 times regularly will affect the cure of tuberculosis disease. If tuberculosis patients do not comply with the treatment of taking tuberculosis drugs will fail and cause relapse and unsuccess, so tuberculosis patients must re-treat with a longer time of >6 months, if tuberculosis patients take treatment taking tuberculosis drugs fail it will continue at the stage of >8 months

Adherence of tuberculosis patients undergoing treatment taking tuberculosis drugs is very important, with the aim being to increase the knowledge of tuberculosis patients about the importance of the function and impact of medication regularity and supervision of taking medication on time, in this case it can affect the duration of treatment taking tuberculosis drugs. The duration of treatment of patients taking tuberculosis drugs is the period during which tuberculosis patients take tuberculosis medication treatment with the aim of preventing recurrence, resistance to OAT and breaking the chain of transmission, and death in tuberculosis patients.

Table 5
Effect of drug side effects on non-compliance of tuberculosis patients taking medication in *Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Side Effects of the Drug				
There is an effect	31 (37,8)	51 (62.2)	82 (78,1)	1.449
No effect	6 (26,1)	6 (26,1)	6 (26,1)	
Total	**37 (35,2)**	**68(64,8)**	**105 (100)**	

Source: Primary Data Analysis of Respondent Research

In table 5. above, it can be seen that the results of data analysis obtained *a p value* = 0.216 (p>0.05), with a *Prevalence Ratio* (RP) value = 1.449. This means that the side effects of taking medication do not have a significant effect on the non-compliance of patients taking tuberculosis drugs. It can be explained that patients who are not adherent to taking tuberculosis drugs and because they feel there are side effects from the drug there are 62.2%, while patients who are not adherent take tuberculosis drugs even though they feel there are no side effects from the drug.

The results of this study are in accordance with the research of Nitari Rahmi et al at the Puskesmas Seberang Padang September 2012-January 2013, in that there is no significant relationship between OAT side effects and compliance of pulmonary tuberculosis patients in treatment, because the p value obtained is >0.05 (p = 0.562). While the results of this study are different from the results of research conducted by Samsurian (2010), where the results of the study obtained that there is an influence of OAT side effects on pulmonary tuberculosis treatment adherence.

The results of this analysis can conclude that tuberculosis patients who have complaints of OAT side effects have a greater risk of 3,043 times the occurrence of non-compliance of patients taking tuberculosis drugs compared to patients who do not have complaints of the effects of drug shampoo.

Side effects of types of antibiotic drugs, namely Isoniazid, Rifampicin, Pyrazinamide, and Ethambutol, side effects that often appear are nausea, vomiting, changing urine color, and rashes on the skin. Quite a lot of tuberculosis patients do not take medicine anymore because they feel their bodies are healthy. This action is because if the drug taken to completion then tuberculosis disease is not completely cured even though the symptoms have disappeared. By stopping taking tuberculosis drugs even though there is a risk of side effects of the drug.

These side effects occur very rarely and not everyone experiences them. Prescription tuberculosis drugs given by doctors have benefits that will outweigh the risk of side effects. If a patient feels side effects, it's a good idea to consult with a doctor will change the dose or the one that best suits the patient's health condition.

Table 6
The Effect of the Role of Drug Taking Supervisors with Non-Adherence of Tuberculosis Patients Taking Medication in the *Município* Liquiça Work Area, 2019

Variable	Compliance		Total	Value RP
	Obedient	Disobedient		
	n	n		
Medication Monitor				
Medication Monitor	32 (38,6)	51 (61.4)	83 (79,1)	1,696
No Medication Monitor	5 (22,7)	17 (77,3)	22 (20,9)	
Total	**37(32,2)**	**68(64,8)**	**105 (100)**	

Source: Primary Data Analysis of Respondent Research

In table 6 above, it can be seen that the results of data analysis did not affect the role of drug supervisors on non-compliance of tuberculosis patients taking drugs with *p value* = 0.213 (p > 0.05), by obtaining a *Prevalence Ratio* (PR) value = 1.696. It is explained that the Supervisor of Taking Medicine is a supervisor who guarantees the quality of the regularity of taking drugs so that patients quickly and recover from their illness.

The results of the study of Erni, E, *et al* (2009), stated that there was no relationship between the role of the Drug Taking Supervisor and medication adherence but as well as the research of Dewanty et al (2016), the analysis obtained a p value = 0.024 which means there is a relationship between the role of the Drug Taking Supervisor and medication adherence, also the contingency coefficient value of 0.629, which is the strength of the relationship is strong, meaning that the better the role of the Drug Taking Supervisor, the better the role of the Drug Taking Supervisor, it will be The higher the patient's compliance in treatment.

The role of the drug supervisor is to ensure regularity is treatment with a combination of short-term Anti-tuberculosis drugs with direct supervision by the Drug Taking Supervisor. The duties of a Drug Taking Supervisor are not to replace the patient's obligation to take drugs from the health care unit, but the duties of the Drug Taking Supervisor are: Supervise tuberculosis patients to swallow drugs regularly until treatment is complete, encourage patients to seek regular treatment and remind patients to re-check sputum at a predetermined time.

Conclusion

The results showed that there was a significant influence between education and non-adherence to taking tuberculosis drugs during treatment with *a p value* = 0.000 (p < 0.05), with a *Prevalence Ratio* (RP) value = 3.424, knowledge with patient non-compliance taking tuberculosis drugs and obtaining *a p value value* = 0.000 (p < 0.05), with *a Prevalance* Ratio value (RP) = 3.052, family support with patient non-compliance

taking tuberculosis drugs and obtaining *p value* = 0.000 (p < 0.05), with *Ratio Prevalance* (RP) = 3.556, duration of treatment *p-value* = 0.000 (p <0.05), with *Ratio Prevalance* (RP) value = 3.294p-value = 0.000 (p <0.05), with *Ratio Prevalance* value (RP) = 3,294 in the *Município* Liquiça health service working area

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