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The Relationship Between Education, Job, and Family Income with TB Medication Dropouts in Timor-Leste

Valente Da Silva*[1], Suryadhi, Tigeh.[2], Wirawan N.[3], Bakta, Made.[4]

[1] Doctoral Program in Medical Sciences University of Udayana, Denpasar, Indonesia.
[2] Public Health Science Program of Udayana University Denpasar, Indonesia
*Corresponding: E-mail: Valente1968@yahoo.com.au

Background: TB treatment dropout is one causes of treatment failure, which could increase drug resistant cases. Drug resistant cases of TB were reported by the Ministry of Health of East Timor in 2008 (3 cases), 2009 (3 cases), and in 2010 (6 cases). With drug resistant emerging, TB will require longer treatment time. According to the WHO report (2013) the results of pulmonary tuberculosis BTA (+) treatment were reported: Year 2010 the number of failure of treatment was (0.53%); Died of TB (3.53%); Drop out of treatment (4.05%); Outmigration (3.98%); In 2011 cases of treatment failure (0.50%) Died of TB (3.36%); Drop out of treatment (3.36%); Outmigration (1.92%); In 2012 cases of treatment failure (1.03%); Died of TB (3.49%) Drop out of treatment (4.59%) and migration, (2.26%). According to the National Statistics Directorate (NSD) in 2011, that the East Timorese people still live mostly 70.4% in the rural areas. While access to health services remains a challenge, since the people of Timor Leste proclaimed the restoration of its independence. **Objective:** This study aimed to determine whether there is a relationship between the variables of education, family income, and job with cases of TB medication discontinuation**. Methods:** This study was conducted using descriptive correlation method. The sample was determined by Ridwan & Akdon (2010) formula. The total of samples was 100 people who met the inclusion and exclusion criteria, and selected randomly. This research was conducted in District Manatuto and Liquica Timor-Leste on March 28, 2015. **Results:** The correlation test showed a strong positive relationship level if r = 0.51 until +1. Analysis of significance value of r xy = 0.671 and *p* = 0.000 indicates that there is a significant relationship between the variables of education, job and income with variable discontinuation of treatment. **Conclusion:** Based on the results of research and data analysis, it can be concluded that the results of this study are as follows: There was a significant relationship between the variables of education, household income, and jobs to the discontinuation of TB treatment.

Keywords: Relationships, job, income, education, discontinuation, medication

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Introduction

Treatment discontinuation of patients with positive pulmonary TB, which is not subservient to take medicine for two months or more respectively in the initial phase or the continuation phase.[1] Discontinuation of TB medication is one of the causes of potential treatment failure increasing the cases of TB drug-resistant.[1]

Corresponding author:
Valente Da Silva
Address: Doctoral Program in Medical Science of Postgraduate Program of Udayana University, Bali, Indonesia
Email: Valente1968@yahoo.com.au

Based on Health Ministry report of East Timor, drug-resistant TB cases in 2008 was 3 people, then in 2009 amounted to 3 persons, while in 2010 the number reached 6 persons. With the drug-resistant cases, the impact will require a longer treatment.[1]

According to WHO report (2013) discontinuation of treatment was experienced by 194 countries as follows: Africa Region (14%); America (25%); Western Mediterranean (13%); Europe (5.3%); Southeast Asia (21%); Western Pacific (3.9%).[1] The tuberculosis patient profile is the output of the National Tuberculosis Control Program which covered, among others: the complete treatment; patients recovering, treatment

failure, discontinuation of treatment or drop out; and Migration.[1]

Directly Observed Treatment Short Course (DOTS) is one of the strategies of Health Department Program of Timor-Leste that should be implemented in any health care facility. The DOTS program is under the responsibility of a coordinator to always supervise when tuberculosis patients taking the medicine. Steps should be taken by the Government of Timor-Leste to strengthen the ongoing programs as follows: (a) The budget increased; (b) The discovery of new cases with sputum (+); (c) The standard treatment for 6-8 months applies to all TB patients with smear-positive new cases; (d) adequate availability of TB drugs; (e) proper and regular recording and reporting system (MoH, 2008).[3] The risk factor management of medicines and medical equipment faced by CDC Timor-Leste: limited human resources; inadequate coordination between departments; Inadequate distribution of drugs to each District.[3]

According to the report of the National Statistics Directorate (NSD) in 2011, that the East Timorese people as much as 70.4% still live in the rural area.[2] While access to health services remain a challenge, since people of Timor Leste proclaimed restoration of its independence. Some Timor Leste People complained that medical equipment and medicines need to be completed at each facility of health services, so that the problems of people would be handled optimally.[4] Results of treatment of pulmonary tuberculosis BTA (+) reported by CDC of Timor-Leste in the last three years namely: In 2010, the number of treatment failure (0.53%); Died of TB (3.53%); dropout of treatment (4.05%); Outmigration (3.98%); in 2011 cases of treatment failure (0.50%) Died of TB (3.36%); dropout of treatment (3.36%); Outmigration (1.92%); In 2012 the cases of treatment failure (1.03%); Died of TB (3.49%) Dropout of treatment (4.59%) and migration, (2.26%).[3]

According to Muture, *et al* (2011) in Kenya that the characteristics according to the gender; men who have dropped out of TB drugs (59.4%), while women who dropped out of TB drugs (40.6%), with OR = 1.3 and *p* value = 0.01. Unemployed who have dropped out of TB drugs (68.2%), while Employed who have dropped out of TB drugs (31.8%), OR = 1.2, with *p* value = 0.59. Characteristics of the Single status who experienced treatment dropout (57.3%) while the married ones (42.7%) OR = 1.67 *p* value = 0.05. Characteristics of family income per month by < KShs 10,000 as many as (92.1%) the drop out of TB drugs with income ≥ KShs 10,000 (7.9%) OR = 4.5 *p* value = <0.001.[5]

The results of the research in Uganda according to Sendagire, *et al*, (2012) that the characteristics of the male sex who have dropped out of tuberculosis treatment was (59.3%), while the group of women who have dropped out of treatment (40.7%) *p* value = 0.752, Characteristics of marital status by single (34.8%) and married (43%). Characteristics of jobs based on the unemployed (33.7%) who have dropped out of medicine. While the number of the employed (66.3%) experienced drop out of medicine.[6]

The problems faced by Timor-Leste Ministry of Health are: (a) Lack of skill and knowledge of health workers; (B) inadequate monitoring and supervision; (C) Job rotation among Department of Health staffs, and some even withdraw from the Civil Servants.[3] Many risk factors for dropping out of treatment according to some literature such as the results of research in several countries, the report of Timor-Leste CDC and the researcher own observations in the Territory of the Democratic Republic of Timor-Leste (East Timor). Until now no one has done research over the problem, so the researcher took the initiative to conduct research on it.[7]

METHOD

Research Methods

This is correlation method study. Correlational study describes a general approach to the study focused on the assessment of the co-variation between independent variables: employment, family income, and education with the dependent variable: drop out of TB treatment. Aiming to determine the relationship between the independent variable with variable tied of patients with smear positive pulmonary TB. Total sample is determined based on the formula Ridwan and Akdon (2010) 100 persons who meet the inclusion and exclusion criteria and can be selected randomly. This research was conducted in District Manatuto and Liquica Timor-Leste, on 28 March 2015.[8]

Statistical Analysis

Data analysis techniques used in this study are as follows: (a) Analysis of the data, descriptively, to get an idea of the relative frequency distribution, the independent variables and the dependent variable. (b) Multiple Product Moment Correlation, to determine the relationship between the independent variables (education, household income, and employment) and dependent variable (TB drug dropout). Statistical analysis was performed with SPSS 16 Software Program assistance.

RESULT

From the research, it was obtained data in the form of the characteristics of the study subjects according to gender, marital status, occupation, education, family income and drop out of medicine.

Descriptive analysis result shown in the frequency distribution of research subjects in the Table 1.

Table 1 Frequency Distribution Characteristics of Research Subjects by Sex, Marital Status, Income, Employment, and Education

Characteristics	*f*	%
○ Gender		
○ Male	59	59,0
○ Female	41	41,0
○ Marital status		
○ Married	83	83,0
○ Single	17	17,0
Family income		
○ > USD 500.00	54	54,0
○ < USD 400.00	46	46,0
Jobs		
○ Farmer	54	54,0
○ Home industry	34	34,0
○ Civil Servant	12	12,0
Medication dropout		
○ Dropout	11	11,0
○ Not dropout	89	89,0
Education		
○ Unschooled	48	48,0
○ Elementary	21	21,0
School	16	16,0
○ Junior High	13	13,0
School	2	2.0
○ High School		
○ Higher education		

Based on Table 1 above, it can be seen that the relative frequency distribution characteristics of smear positive pulmonary tuberculosis patients are based on: gender, marital status, family income, employment and education.

It can be seen the largest percentage (59%) was found in males compared to females (41%). It shows that the largest percentage (83%) lies in the married status.

While the frequency of family income can be seen the largest percentage (54%) lies in > monthly income of USD 500, compared with a monthly income of <US 400.00. Results distribution according to work, it can be seen the largest percentage (54%) lies in the work of farmers, compared with only home industry jobs (34%). Table 1 above shows the frequency of cases with drug dropout (11%) whereas TB patients who do not drop out of medicine are (89%). Total (48%) more lies in patients who are not in school compared to elementary education.

Table 2 The Test Results of Double Correlation on Independent Variables to Dependent Variables

Multiple Correlation test results showed that the strong level of positive relationship, if the value of r = 0.51 until + 1.[9] Analysis of significance value of R = 0.671 and *p* = 0.000 indicates that there is a significant relationship between the variables of education, income, and jobs with variable drop out of treatment, meaning the three variables of education, income and work together to have a strong relationship positively to drop out of medicine, with a value of R = 0.671 and *p* = 0.000.

Independent Variables	*R* Value	*P* Value
Education	0,671	0,000
Income		
Occupation		

The coefficient of determination (R Square) = 0.450 or 45.02% variable means dropping out of TB treatment (Y) is affected by 45% by the education variable (X1), income (X2), and employment (X3), whereas the remaining 55% was due to other causes.

DISCUSSION

The results of the research proved that there is a strong correlation between the variables of education, income, and employment with the variable of drop out of treatment. This is supported by the results of data processing (Table 2) showed there is correlation of strong level category with value of r xy = 0.671 with *p* = 0.000 in the direction of positive relationships. Based on the analysis of the characteristics of the study subjects descriptively showed that the largest percentage (59%) was in the male, compared with the female (41%). Marital status is the largest percentage (83%) lies in the subjects who have family. While the frequency of family income can be seen that the largest percentage (54%) was on the monthly income > USD 500.00.[3] Results distribution on the occupation shows that the largest percentage (54%) lies in the subject of research of farmers. Number of research subjects who dropped out of treatment for TB was (11%), while (89%) was the research subjects who did not have dropped out of treatment.[4]

The cause of TB drops out of medicine was the research subjects who were not taking TB drugs adequately and properly. This is supported by the results of the study that recorded cases of drop out of medicine (11%). While the DOTS treatment program is expected to reduce morbidity and mortality, to improve the quality of life, maintaining the immune system and limit the transmission of TB germs to other family members.[5] Possible case of dropping out of treatment increased when patients with pulmonary TB who were not taking the correct medication did not adequately improved.[6] In this case the health personnel on duty throughout the health care center should take an active role to provide health

education to patients with pulmonary tuberculosis adequately, so that the dropout rate and the problem of drug-resistant treatment could be reduced.[7]

According to George M. Foster of University of California, that epidemiologically there are many other factors that have been declared as factors that play an important role for the distribution and prevalence of various health problems. Men experience more health problems compared to women. Results of research on the relationship of job with the drop out of treatment (p = 0.000) was in contrast to the results of research of Muture, et al in Kenya with (p = 0.05).[10]

Based on the report of the Ministry of Health of Timor-Leste that drop out treatment was recorded at 4,05% (2010), 3.36% (2011) and 4.59% in (2012). The same research results are also reported by Muture, *et al* (2011) in Kenya that the characteristics of the research subjects by gender showed that males dropped out of treatment was (59.4%), while the group of women who have dropped out of TB drugs (40.6%) with value of OR = 1.3 p value = 0.01. Unemployed job status under which dropped out of treatment was (68.2%) and Employed by (31.8%), OR = 1.2 p value = 0.59. Marital status is single as many as (57.3%) who have dropped out of treatment, while married (42.7%) dropped out of treatment, OR = 1.6 p value = 0.05. Characteristics of family income per month < KShs 10,000 amounted to (92.1%), while family income > KShs 10,000 by (7.9%) OR = 4.5 p value = 0.001[9]. The results of the same study in Uganda according to Sendagire, *et al* (2012) that the characteristics of the male who dropped out of treatment was (59.3%), and women who have dropped out of treatment was (40.7%). Characteristics by jobs showed that unemployed (33.7%) while employed who dropped out of treatment was (66.3%).[11,12]

CONCLUSION

Based on the research results and data analysis, it can be concluded that there was a significant relationship between the variables of education, income, and employment with the drop out TB medications.

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