

The Correlation Between the Perceived Recovery and Migration with Drop Out TB Treatments at Dili and Ermera Districts - Timor-Leste

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ABSTRACT

Background: Tuberculosis (TB) is a direct contagious infectious disease caused by Mycobacterium tuberculosis. The bacteria commonly affect the lungs with source of transmission is the positive pulmonary TB patient's sputum or smear. Default patient's treatment with pulmonary TB BTA (+) was to take medicine for two months or more, respectively in the initial phase and in the continuation phase. According to the WHO report, in 2013, drop out from treatment were experienced by 194 countries as follows: Africa Region (14%); America (25%); Western Mediterranean (13%); Europe (5.3%); Southeast Asia (21%) Western Pacific (3.9%). Timor-Leste drop out problem was caused by migration. According to Ministry of Health of Timor-Leste, 2008, that in the early phase of TB treatment (first 14 days), patients experience dramatic change in symptoms, where they feel better and cured so they stop taking TB drugs. **Objective:** This study aims to determine whether there was a correlation between variables of perceived recovery, migration to drop out case of TB treatment. **Method:** This is descriptive study using case-control design. The research samples were randomly chosen with a ratio of (1: 1) namely 57 of the case group and 57 of the control group so that the total number of samples was 114 people, who meet the inclusion and exclusion criteria. **Results:** There is a significant correlation between the feelings of TB cured with drop out from TB treatment ($p < 0.05$), and there is a significant correlation between migration with drop out from TB treatment ($p < 0.05$) **Conclusion:** There is a significant correlation between the perceived recovery, and migration to the drop out cases of TB treatment.

Keywords: Perceived Recovery, Migration, Defaulting TB Treatments

INTRODUCTION

Tuberculosis (TB) is a direct contagious infectious disease caused by Mycobacterium tuberculosis. These germs attack the lungs with a source of transmission is patients with positive pulmonary tuberculosis smear.¹ According to the WHO report, in 2013, drop out from TB treatment were experienced by 194 countries as follows: Africa Region (14%); America (25%); Western Mediterranean (13%); Europe (5.3%); Southeast Asia (21%) Western Pacific (3.9%)²; Over 95% of deaths from pulmonary tuberculosis occurred in low and middle income countries including the Timor-Leste.² Results of treatment of patients with smear (+) pulmonary tuberculosis were reported by CDC of Timor-Leste consists of: Complete treatment, patient's recovery, treatment failure; defaulting from treatment, and migration.³

According to Hacker, *et al*, in Belgium, drop out from TB treatment in patients with pulmonary TB BTA (+) were caused by gender, and age. Besides the social factors such as marital status and employment status that also plays a role.

According to Housen, *et al*, 2012, in East Timor that the population that experiencing migration (44.3%) was in a female group, and (55.7%) is in a male group. The results showed that the reason for the migration was (60.4%) for education, looking for work (15.1%), and follow her husband / family of (11%). Directly Observed Treatment Short Course (DOTS) is one of the strategies Program of the Timor-Leste Ministry of Health that must be implemented in all health care centers, and patients must be monitored when taking medications under the responsibility of a TB coordinator. Steps that must be taken by the Government of Timor-Leste to strengthen the ongoing program with the following policies: (a) The increase in budget; (B) The discovery of new cases with (+) sputum; (C) The standard of treatment for 6-8 months, applies to all TB patients with smear-positive new cases; (D) adequate availability of medication; (E) recording system of good and regular reporting (Ministry of Health of Timor-Leste, 2008).³⁻¹⁰

According to WHO (1984) that a person behaves in certain ways because of no fundamental reason in the form of knowledge, perceptions, attitudes, beliefs, assessment of the object. Then the knowledge obtained from the parents, grandparents and an accepted belief that is based on faith and the previous evidence. According to Foster, University of California that epidemiologically many other factors have been declared as factors that play an important role for the distribution and prevalence of various health problems. Management problems of medications and medical equipment that are faced by Timor-Leste Ministry of Health /TL CDC, among others: (a) Limited human resources; (b) Inadequate coordination among Departments; (c) Inadequate distribution of pharmaceuticals (Timor-Leste Ministry of Health, 2008)³. Results of treatment of pulmonary tuberculosis BTA (+) were reported by CDC of Timor-Leste in the last three years namely: In 2010, the mortality by TB (3.53%); Defaulting from treatment (4.05%); Outmigration (3.98%); In 2011 the mortality by TB (3.36%); Defaulting from treatment (3.36%); Outmigration (1.92%); In 2012, the mortality by TB (3.49%) Defaulting from treatment (4.59%) and migration, (2.26%).³

According to Paul Colson, the factors that may affect the patients' defaulting from treatment are: (1) Because of the patient's own reason; (2) Characteristics of the provider; (3) Facilities of clinic; (4) treatment regimen; (5) Because of the disease. The challenges faced by the Government of Timor-Leste are: (a) Lack of skills and knowledge of health workers; (b) lack of monitoring and evaluation; (c) Movements of health staff in the health environment; (d) Resignations of the civil servants.³ According to Martins, *et al*, (2008) in Timor-Leste that some of the factors that can affect the incidence of incomplete of treatment are: (1) The use of traditional medicine; (2) economic barriers; (Geographical conditions).⁶ According to the report of National Statistics Directorate (NSD) of 2011 that in the location of research, the populations are 47% still living in rural areas and the rest of 53% of the population are still living in urban areas.⁷

METHODS

Research Methods

This is a descriptive study using case control correlation method. Samples were selected randomly by the ratio of (1:1), namely 57 of the case group and 57 of the control group so that the total number of samples was 114 people who met the inclusion and exclusion criteria. The control samples were selected by matching based on age and gender. Analysis of the correlation between

the study variables was conducted by using Chi-Square test ($\alpha = 0.05$). The locations of research were in the Districts of Dili and Ermera of Timor-Leste conducted on 10 January 2015.

Statistical Analysis

The data were analyzed descriptively to get an overview of the relative frequency distribution of the independent and the dependent variables. The Pearson Chi-Square Test ($\alpha = 0,05$), in order to determine the correlation between variables of perceived recovery, migration with the variable of defaulting from TB treatment.

RESULT

Table 1 shows the characteristics of the study subjects namely gender, age group, education, occupation, marital status and defaulting from TB treatment. Descriptive analysis shows the frequency distribution and percentage of research subjects namely: the largest percentage of 73.7% was in the male group, compared with the female group of 26.3%. Age group being the largest percentage of 31.6% was in the age group of 15-24 years old, compared with the age group of 25-34 years' old which was 29.8%. It also shows that a larger percentage of 43.9% was in the level of high school education and higher education, compared with those unschooled people (21%). The characteristics by occupation were farmers with a greater percentage of 45.6%, compared with the home industry jobs at 33.3%. The results shown in table 1 also present the characteristic of marital status, in which the largest percentage of 64.9% was in married respondents, compared with the single status of 26.3%. Table 2 shows that there was a significant correlation between the variables of perceived recovery with the variable of defaulting from medication ($p < 0.05$). Then there was a significant correlation between migration and Default from TB treatment ($p < 0.05$).

DISCUSSION

Based on the analysis of descriptive characteristics of the study subjects showed that the largest percentage of 73.7% was in the male group, compared with the female group of 26.3%. The results of this study are similar to the results of the study of Maruza, *et al* 2011 in Brazil that 82.3% male patients experienced defaulting from TB treatment. It also occurred in Kenya that the male group of 59.4% were defaulting from TB treatment, and 40.6% of female patients experienced defaulting from TB treatment. The results of the study of Hima, *et al*, 2015 showed that in Indonesia, 40% of male patients

experienced defaulting from TB treatment. According to the characteristics of research subjects, it showed that 31.6% of defaulting from TB treatment cases was in the age group of 15-24 years old, compared to the age group of 25-34 years old (29.8%).

Table 1.
The Frequency of Default from TB Treatment Cases Based on the Research Subject

Characteristics		
Characteristics	Defaulting from TB treatment	
	<i>f</i>	%
Sex		
Male	42	73,7
Female	15	26,3

Age Groups		
15-24 Years old	18	31,6
25-34 Years old	17	29,8
35-44 Years old	9	15,8
>45 Years old	13	22,8
Education Background		
Unschooler	12	21,0
Primary School	11	19,3
Junior High School	9	15,8
High School and Higher Education	25	43,9
Occupation		
Farmer	26	45,7
Civil servant and Private employee	12	21,0
Home industry jobs	19	33,3
Marital status		
Married	37	64,9
Single	15	26,3
Widow/widower	5	8,8
Total	57	100,0

Table 2.
The Correlation between the Perceived Recovery and Migration with Defaulting from TB treatment

Variable	Defaulting from TB treatment n (%)	Non-Defaulting from TB treatment n (%)	Value of <i>p</i>
Perceived Recovery			
Yes	54(94,7)	18(31,6)	0,018
No	3(5,3)	39(68,4)	
Migration			
Yes	20(35,0)	9(15,8)	0,000
No	37(65,0)	48(84,2)	
Total	57 (100,0)	57 (100,0)	

In Table 1 are presented the results of the descriptive analysis that the characteristics of education with the percentage (43.9%) was in the group of high school and higher education. The results of this research is similar to the research of Lackey, *et al*, 2015 in Peru with patients of secondary education who experienced defaulting from the TB treatment OR = 1.55 95% CI: 1.03-2.33. ¹ The problem of defaulting from TB treatments also occurs in Kenya with the number of 71.4% was on the educational level of Primary School and 28.6% on the patients with Secondary School. Seen from the job characteristics, the dominant percentage of 45.6% was in the farmer group. The same problem was reported in Kenya that defaulting from TB treatment in the group of unemployed patients reached 68.2%, while for the employed amounted to 31.8%. Seen from the characteristics of the marital status, the largest percentage of 64.6% was in married patients, compared with those in single status (26.3%). The same cases of defaulting from TB treatment also happened in Kenya that the single group (57.3%) and the married group (42.7%).

The causes of defaulting from TB were the subject of research who defaulted in taking medication adequately and properly as supported by the results of the study the recorded cases of defaulting from TB treatment was 11%. With the DOTS program, it is expected to reduce the morbidity and mortality, to improve the quality of life, to maintain the immune system and to limit the transmission of TB germs to other family members. Table 2 presented that there was a significant correlation between the perceived recovery with defaulting from TB treatment ($p < 0.05$). Reasons for defaulting from TB treatment because: (a) the long term treatment of TB, (b) Felt had recovered since the early weeks of the treatment of the symptoms of TB disease disappears dramatically, (anonymous,) The results in Table 2 show that there was a significant correlation between migration and the defaulting from TB treatments ($p < 0.05$). This research is the same as the results of research by Hacker, *et al*, in Belgium that patients of defaulting from pulmonary TB treatments were due to migration

factors, but the percentage value was not mentioned.

CONCLUSION

Based on the results of research and data analysis, it can be concluded that the output of this study are as follows: There was a significant correlation between the variables of perceived recovery and migration with the variable of defaulting from TB treatment.

REFERENCES

1. Brian Lackey, Carlos Seas, Patrick Van der Stuyt, Larisea Otero, Patient Characteristic Associated with Tuberculosis Default: A Cohort Study in a High-Incidence area of Lima, Peru.
2. WHO, Global TB Report 2013. WHO Library Cataloguing-in-Publication Data. 1. Tuberculosis Epidemiology. 2. Tuberculosis, Pulmonary-prevention and control. 3. Tuberculosis - economic. 4. Tuberculosis Multidrug Resistant, 5. Annual Report. I. World Health Organization. ISBN 9789241564656.
3. Kementerian Kesehatan Timor - Leste, Manual Nasional Tuberkulosis Program Kontrol, Edisi ke tiga, 2008.
4. Bernard N Muture^{1*}, Margaret N Keraka², Peter K Kimuu³, Ephantus W Kabiru⁴, Victor O Ombeka³ and Francis Oguya², 2011, Factors Associated with Default from Treatment Among.
5. Ibrahim Sendagire, Maarten Schim Van der Loeff, Andrew Kambugu, Joseph Konde-Lule, Frank Cobelens mail, 2011, Urban Movement and Alcohol Intake Strongly Predict Defaulting from TB Treatment: An Operational Study, di Afrika.
6. Martins N¹, Grace J, Kelly PM. 2008, An Ethnographic Study of Barriers to and Enabling Factors for Tuberculosis Treatment, Adherence in Timor-Leste.
7. National Statistic Directorate, Population and Housing Census of Timor-Leste 2010, Volume 2: Population Distribution by Administration Areas.
8. Anthony B. Zwi, Ilse Blignault Diana Glazebrook, Veronica Correia, Catherine R. Bateman Elias Ferreira and Basilio M. Pinto, 2009. Timor-Leste Health Care Seeking Behaviour Study, 2009, 26, 31, 48, www.sphc.med.unsw.an / SPHCM web.nsf/page/Timor-Leste.
9. Ibrahim Sendagire, Maarten Schim Van der Loeff, Andrew Kambugu, Joseph Konde - Lule, Frank Cobelens mail, 2011, Urban Movement and Alcohol Intake Strongly Predict Defaulting from TB Treatment: An Operational Study, di Afrika.
10. Kementerian Kesehatan Timor -Leste, 2011, National Health Sector Strategy Plan 2011-2013.
11. Alyssa Finlay,¹ Joey Lancaster,² Timothy H Holtz,¹ Karin Weyer,³ Abe Miranda,¹ and Martie van der Walt, 2002 A National Study to Identify Factors Associated with Default from TB Treatment, South Africa; 16- 02- 2014, 17.35 pm.
12. Arif R. Hanafi, Praseno Hadi, tt, Mekanisme dan Diagnosis Multidrug Resisten TB, [http:// www.ppti. inf/ 2010/ 07/ mekanisme - dan - diagnosis-multidrug. htm](http://www.ppti.inf/2010/07/mekanisme-dan-diagnosis-multidrug.htm).15-02-2014,13, 25.
13. Bagrada dan Primasari, Faktor-Faktor Yang Mempengaruhi Tingkat Ketidak Patuhan Penderita TB Dalam Berobat di Poliklinik DOTS RSUP Sanglah Denpasar Bali, Artikel, Bagian/SMF Ilmu Penyakit Dalam FK UNUD/RSUP Sanglah Denpasar.
14. Cherkaoul Imad, Radial Sabouni, Iraqi Ghali, Darya Kizub, Alexander C. Billioux, Kenza Bennani, Jamal Eddine Bourkadi, Abderrahmane Benmamoun, Ouafae Lahlou, Rajae El Aouad. Kelly E. Dooley, 2014. Treatment Default Amongst Patients with TB in Urban Morocco: Predicting and Explaining Default and Post-Default Sputum Smear and Drug Susceptibility Result.
15. Danang Sunyoto, Ari Setiawan, 2013, Statistik Kesehatan, Diterbitkan Nuha Medika, Cetakan Pertama.
16. Danny Wedding, Behavior and Medicine, Second Edition, Mosby St. Louis Baltimore Boston Carisbad Chicago Naples New York Philadelphia Portland London Madrid Mexico City Singapore Sidney Tokyo Toronto Wiesbaden.
17. Flora MS¹, Amin MN, Karim MR, Afroz S, Islam S, Alam A, Hossain M. 2013 Risk Factors of Multidrug Resistant Tuberculosis in Bangladeshi Population: A Case Control Study, [http:// www. Ncbi .nlm. nih.gov/ pubmed/ 23923410](http://www.ncbi.nlm.nih.gov/pubmed/23923410).
18. Franks, PhD, dkk. Adherence to Treatment for Latent Tuberculosis Infection: A Manual for Health Care Providers, Harlen Hospital.
19. Harold Thimbleby, Paul Cairns ,tt, Determinants of Health and Wellbeing, [http :// www .swansea. gov .uk /hcwip /media /pdf/4/1/Determints of Health and Wellbeing pdf](http://www.swansea.gov.uk/hcwip/media/pdf/4/1/Determinants%20of%20Health%20and%20Wellbeing.pdf). University of York, England.
20. Halim Danusantoso, 2002, Ilmu Penyakit Paru, Edisi 2, Penerbit Buku Kedokteran Diterbitkan pertama kali oleh Penerbit Buku Kedokteran EGC, 2010 Penerbit Buku

- Kedokteran EGC. P.O Box 4276/ Jakarta 10042, Telp. 6530 6283. Cetakan 2013.
21. Indra Permana, 2013, Masalah Kesehatan: Mencegah MDR-TB, bukan Mengobati 16-02-2014, 18.00 pm [http:// masalah - sehatku.blogspot. com /2013/ 04/ mencegah – mdr - tb-bukan -mengobati.html](http://masalah-sehatku.blogspot.com/2013/04/mencegah-mdr-tb-bukan-mengobati.html) indra permana Majalah Farmacia Edisi Maret 2011, Sumber: majalah –farmacia . com.
 22. James Chin, 2009, Manual Pemberantasan Penyakit Menular, Cetakan III, Penerbit CV Infomedica.
 23. Kelly E Dooley, Ouafae Iahlou, Iraqui Ghali, Janine Knudsen, My Driiss Elmessaoudi, Imad Cherkaoui, Rajae El Aouad, 2011, Risk Factors for TB Treatment Failure, Default, or Relapse and Outcomes of Retreatment in Morocco. BMC Public Health.
 24. Kementerian Kesehatan Timor-Leste, Manual Nasional TB Program Kontrol Edisi ke tiga, 2008, a.
 25. M. Sopiudin Dahlan, 2012. Langkah - Langkah Membuat Proposal Penelitian Bidang Kedokteran dan Kesehatan, CV Sagung Seto; Serie 3 Edisi 2 Cetakan 2.
 26. Marlucia da Silva Garrido mail, Maria Lucia Penna, Tomàs M. Perez-Porcuna Alexandra Brito de Souza, Leni da Silva Marreiro, Bernardino Claudio Albuquerque, Flor Ernestina Martínez-Espinosa, Samira Bühler-Sékula 2012, Factors Associated with TB Treatment Default in an Endemic Area of the Brazilian Amazon: A Case Control Study in Brazil.
 27. Soekidjo Notoatmodjo, 1993, Metodologi Penelitian Kesehatan, Penerbit Rineka Cipta Cetakan Pertama.
 28. Sophia Vijay, Prahlad Kumar, Lakbir Singh Chauhan, Balasangames hwara Hanumanthappa Vollepore, Unnikrishnan Pallikkara Kizhakkethil, Sumathi Govinda Rao, (2010); Risk Factors Associated with Default among New Smear Positive TB Patients Treated Under DOTS in India.
 29. Sudigdo Sastroasmono, Sofyan Ismael, 2014, Dasar-Dasar Metodologi Penelitian Klinis, CV Sagung Seto, Edisi 5.
 30. Ugra Mohan Jha, Srinath Satyanarayana mail, Puneet K. Dewan, Sarabjit Chadha Fraser Wares, Suvanand Sahu, Devesh Gupta, L.S. Chauhan, 2006, Risk Factors for Treatment Default among Re -Treatment TB Pat. India.
 31. Ridwan dan Akdon, Rumus dan Data dalam Analisis Statistika. Untuk Penelitian (Administrasi Pendidikan – Bisnis –
Pemerintahan - Sosial-Kebijakan – Ekonomi – Hukum – Manajemen - Kesehatan).
 32. <http://beranisehat.com/achieves/pentingnya-menutaskan-pengobatan-tuberculosis-hingga-semuh/> Pentingnya Menuntaskan Pengobatan Tuberculosis Hingga Sembuh.

