



Factors of Loss to Follow-up Antiretroviral Therapy in Islanded Area

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Abstract

Loss to follow-up of antiretroviral therapy is when PLWHA (People Living with HIV/AIDS) do not come for antiretroviral therapy for more than 3 months. This study aimed to determine the factors of loss to follow-up antiretroviral therapy for PLWHA at Prof. Dr. W. Z. Johannes Kupang Public Hospital where PLWHA with land, water and air transportation are served. This was a case control study with 66 samples of PLWHA. The samples underwent antiretroviral therapy in Prof. Dr. W. Z. Johannes Kupang Public Hospital from 2006 to 2016. Saturated sampling technique was done for cases group and simple random sampling was done for control group. Univariate and bivariate data analysis were done in this study. The result of bivariate analysis showed that there were association between intention ($p = 0.004$, OR = 4.667), self efficacy ($p = 0.0001$, OR = 7.875), action ($p = 0.0001$, OR = 45.000), transportation mode ($p = 0.046$, OR = 0.200), and transport costs ($p = 0.0001$, OR 19.333) and loss to follow-up antiretroviral therapy. It could be concluded that transportation and behavior were the major problems for the loss to follow up antiretroviral therapy in the islanded area.

Abstrak

Gagal follow-up antiretroviral therapy adalah jika ODHA (Orang dengan HIV/AIDS) tidak menjalani terapi antiretroviral lebih dari 3 bulan terakhir. Penelitian ini bertujuan untuk mengetahui faktor-faktor gagal follow-up antiretroviral therapy pada ODHA di RSUD Prof. Dr. W. Z. Johannes Kupang yang melayani para ODHA dengan moda transportasi darat, air, dan udara. Desain penelitian ini adalah case control. Sampel sebanyak 66 ODHA yang menjalani antiretroviral therapy di RSUD Prof. Dr. W. Z. Johannes Kupang sejak tahun 2006 sampai 2016. Teknik pengambilan sampel yang digunakan adalah sampel jenuh untuk kelompok kasus dan simple random sampling untuk kelompok kontrol. Analisis data menggunakan prosentase untuk univariat dan bivariat. Hasil analisis bivariat menunjukkan ada pengaruh niat ($p = 0,004$, OR = 4,667), self efficacy ($p = 0,0001$, OR = 7,875), tindakan ($p = 0,0001$, OR = 45,000), moda transportasi ($p = 0,046$, OR = 0,200), dan biaya transportasi ($p = 0,0001$, OR 19,333) terhadap gagal follow up terapi antiretroviral. Dapat disimpulkan bahwa masalah utama gagal follow up terapi antiretroviral di wilayah berkepulauan ini adalah transportasi dan perilaku.

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INTRODUCTION

HIV/AIDS is one of the health problems that threaten various countries in the world including Indonesia. HIV itself is an infection caused by a virus that attacks the human immune system (Masfufah, 2016). PLWHA (People Living With HIV/AIDS) need to undergo antiretroviral therapy properly. Antiretroviral therapy (ART) is a treatment to inhibit viral replication in the body of people infected with HIV/AIDS. To suppress viral replication in the blood, the level of antiretroviral drugs (ARVs) should always be above a certain level. The use of antiretroviral drugs (ARVs) is one of the prevention efforts for increasing the life expectancy of PLWHA, although not to cure disease or kill the virus, but antiretroviral therapy can stop the progress of HIV/AIDS by suppressing HIV progression, restore the immune system by reducing the occurrence of opportunistic infection, reducing morbidity and mortality, preventing vertical transmission from mother to baby, preventing or reducing the risk of horizontal transmission (from person to person) thereby improving the quality of life of PLWHA.

The principle of antiretroviral therapy is that it should use 3 types of drugs that all three must be absorbed and are in therapeutic doses in the blood, known as highly active antiretroviral therapy (HAART). Then the term HAART is often shortened to antiretroviral therapy (ART) or ARV therapy. The government sets the alloys used in ARV treatment based on 5 aspects of effectiveness, side effects/toxicity, drug interactions, adherence, and drug prices (Sitanggang et.al, 2015). Optimal virus suppression will be achieved when at least 90 - 95% of all doses are not missed.

ARV drugs are readily accessible worldwide, including Indonesia, so the prognosis of HIV-infected children will improve. This can be seen from the decreasing of death rate of HIV-infected patients. One of the consequences of an increased life expectancy of HIV-infected children is the emergence of new problems including treatment failure and drug resistance issues. ARV drug resistance is a consequence of the incomplete suppression of HIV replication by ARV drugs (Muktiarti et. al, 2012).

Loss to follow-up antiretroviral therapy is when PLWHA do not come for antiretroviral drugs more than 3 months. Data from the Ministry of Health indicate that up to March 2016 recorded the number of PLWHA who had received antiretroviral therapy as many as 127,128 people. Of these, only 65,826 (51.79%) were still on antiretroviral therapy, while 20,337 (16.00%) died, 11,397 (8.96%) moved, 11,397 (20.9%) stopped, and 21,993 (17.3%) in state of loss to follow-up.

Noncompliance can be influenced by age,

education, economic problems, fear of side effects, lack of knowledge about the disease, ease of access to services, family support and medical personnel. These factors can occur due to lack of information and communication so that patients do self-regulation of drug therapy received (Yenyen, 2015).

Data of Prof. Dr.W.Z. Johannes Kupang Public Hospital in November 2016, PLWHA which used antiretroviral therapy of 597 people, where 89 people (14.9%) were in the state of loss to follow-up antiretroviral therapy. Of these PLWHA are located in Rote Ndao Regency, Alor Regency, Timor Tengah Utara Regency, and Timor Tengah Selatan Regency were 66 patients which in state of loss to follow-up of 10 patients (15%).

In a study by Mberi (2015) it was stated that there is evidence of interrupting ART leading to inferior clinical outcomes and a higher risk of cortical opportunistic complaints and death in patients. This means that people who are not regular in ART will increase the person's resistance to the drug consumed.

This study aimed to determine the factors of loss to follow-up antiretroviral therapy of PLWHA at Prof. Dr. W. Z. Johannes Kupang Public Hospital. Information on the factors of loss to follow-up antiretroviral therapy is expected to be followed up so that the occurrence of loss to follow-up can be suppressed.

METHOD

This study was conducted for 1 month, ie from 27 October 2017 to 27 November 2017, at Prof. Dr. W.Z. Johannes Kupang Public Hospital. The type of research used is quantitative research with case control design. The population in this study were all PLWHA which used antiretroviral therapy in 2006 until 2016. The total sample was 66 respondents consisting of 33 case group respondents and 33 control group respondents. The case group respondents were loss to follow-up antiretroviral therapy PLWHA which fulfilled inclusion criteria. The respondents of control group were PLWHA which used antiretroviral therapy on a regular basis that meet the inclusion criteria. Selection of case group sample was performed with saturated sampling, while the control group sample was performed by simple random sampling. Data collection was performed by conducting direct interviews to the respondents using questionnaires. Univariate and bivariate data analysis were done in this study. Bivariate analysis used Chi Square Test and Fisher Test.

RESULTS AND DISCUSSION

Both loss to follow-up group and success group were majority in age group of 26-35 years.

Table 1. The influence of respondent's characteristic on loss to follow-up antiretroviral therapy of PLWHA at Prof. Dr. W. Z. Johannes Kupang Public Hospital.

Characteristic		Follow Up		p values
		Loss	Success	
Age	17-25	4 (12.1%)	4 (12.1%)	0.798
	26-35	17 (51.5%)	15 (45.5%)	
	36-45	8 (24.2%)	8 (24.2%)	
	46-55	1 (3.1%)	4 (12.1%)	
	56-65	3 (9.1%)	2 (6.1%)	
Gender	Male	24 (72.7%)	20 (60.6%)	0.728
	Female	9 (27.3%)	13 (39.4%)	
Education	Primary School	2 (6.1%)	4 (12.1%)	0.864
	Junior High	7 (21.2%)	8 (24.2%)	
	Senior High	19 (57.6%)	15 (45.5%)	
	College	5 (15.2%)	6 (18.2%)	
Occupation	Unemployed	3 (9.1%)	2 (6.1%)	0.748
	Housewife	2 (6.1%)	8 (24.2%)	
	Self employed	12 (36.3%)	10 (30.3%)	
	Government Employees	3 (9.1%)	1 (3.1%)	
	Farmer	4 (12.1%)	4 (12.1%)	
	others	9 (27.3%)	8 (24.2%)	
Income	<1,575,000	22 (81.8%)	26 (78.8%)	0.891
	≥1,575,000	6 (18.2%)	7 (21.2%)	
Therapy Duration	<6 months	7 (21.2%)	2 (6.0%)	0.118
	≥6 months	26 (78.8%)	31 (94.0%)	

Analysis of association between age and loss to follow up obtained p value = 0.798. It can be concluded that there were no association between age and loss to follow-up antiretroviral therapy. Gender of respondents who loss most of the men of 24 people. The results obtained p-value of 0.728. It can be concluded that there was no association between gender and loss to follow up. Education of respondents who lost to follow-up most of at the senior high school of 19 people. The results obtained p-value of 0.864. It can be concluded that there was no association between education and loss to follow-up. The occupation of respondents who lost to follow-up was mostly as self-employed of 12 people. The results obtained p-value of 0.748. Income of respondents who loss to follow-up was mostly <1,575,000 as many as 27 people. The result of analysis obtained p-value of 0.891. It can be concluded there was no association between income and loss to follow-up. The duration of respondent who loss to follow up mostly ≥6 months which is as many as 26 people. The results obtained p-value of 0.118, so there was no association between therapy duration and loss to follow-up. The detail influence of respondent's characteristic on loss to follow-up of antiretroviral therapy of PLWHA at Prof. Dr. W. Z. Johannes Kupang Public Hospital is presented in Table 1.

Table 2 shows that the knowledge of respondents who loss to follow-up was largely not good of 17 people. The results obtained p-value of 0.261 so it

can be concluded that there was no association between knowledge and loss to follow-up of antiretroviral therapy. The respondent's intentions who loss to follow-up was mostly deficient which amounted to 21 people. The results obtained p-value of 0.004 and OR of 4.667. It can be concluded that there was association between intention and loss to follow-up of antiretroviral therapy and PLWHA with deficient intention had 4.667 times of probability to loss to follow up antiretroviral therapy. Intention, social support, access to information, and personal freedom are associated with HIV/AIDS prevention. The self-efficacy of respondents was mostly deficient as many as 21 people. The results obtained p-value of 0.0001 and OR 7.875. It can be concluded that there was association between self-efficacy and loss to follow-up of antiretroviral therapy and PLWHA with deficient self-efficacy had 7.875 times of probability of loss to follow up. The action of respondents who loss to follow-up was mostly deficient as many as 27 people. The results obtained p-value of 0.0001 and OR 45,000. It can be concluded that there was association between action and loss to follow-up antiretroviral therapy and PLWHA with deficient action had 45 times probability of loss follow up. Distance of residence with hospital on loss to follow-up respondents is mostly <20 km, on 17 people. The result of analysis obtained p-value of 0.413 so it can be concluded there was no association between distance of residence and loss to follow-up of antiretro-

Table 2. Association between Behavior Factor, Geography Factor, and Role of Companion and loss to follow-up antiretroviral therapy in PLWHA at Prof. Dr. W. Z. Johannes Kupang Public Hospital.

Variable		Follow Up		p values	OR
		Loss	Success		
Knowledge	Lack	17 (51.5%)	11 (33.3%)	0.261	-
	Good	16 (48.5%)	22 (66.7%)		
Intention	Deficient	21 (63.6%)	9 (%)	0.004	4.667
	Good	12 (36.4%)	24 (%)		
Self-efficacy	Deficient	21 (63.6%)	6 (18.2%)	0.0001	7.875
	Good	12 (36.4%)	27 (81.8%)		
Action	Deficient	27 (81.8%)	3 (9.1%)	0.0001	45.000
	Good	6 (18.2%)	30 (90.9%)		
Distance	≥20km	16 (48.5%)	21 (63.6%)	0.413	-
	<20km	17 (51.5%)	12 (36.4%)		
Transportation Mode	Non-land (Water and air)	22 (66.7%)	30 (90.9%)	0.046	0.200
	Land	11 (33.3%)	3 (9.1%)		
Transportation Cost	High	29 (87.9%)	9 (27.3%)	0.0001	19.333
	Low	4 (12.1%)	24 (72.7%)		
Role of Companion	Deficient	18 (54.5%)	15 (45.5%)	0.602	-
	Good	15 (45.5%)	18 (54.5%)		

viral therapy. Most of PLWHA (22 people) who loss to follow up antiretroviral therapy had to reach the hospital by non-land transportation mode (water and air transportation mode). Analysis resulted in p value 0.046 and OR 0.200. It could be concluded that there was association between transportation mode and loss to follow up and PLWHA with non-land transportation mode had 0.2 times of probability of loss to follow up. The cost of transportation during treatment to the hospital was mostly high on 29 people. The results obtained p-value of 0.0001 and OR 19.333. It concluded there was association between transportation costs and loss to follow-up antiretroviral therapy and PLWHA with high cost transportation had 19.333 times of probability of loss to follow up. The role of companion on most of the loss to follow-up respondents was deficient as many as 18 people. The result of analysis obtained p-value of 0.602 so it can be concluded that there was no association between role of companion and loss to follow-up antiretroviral therapy.

The results of this study indicate that factors that influence the loss to follow-up of antiretroviral therapy in PLWHA in Prof.Dr.W.Z.Johannes Kupang Public Hospital can be explained as follows: age, in general, has no effect but age above 56 years has an effect on loss to follow-up of antiretroviral therapy. This is not in accordance with research by Meloni et al. (2014) which stated that young age is at risk of loss to follow-up of antiretroviral therapy. Another study that not in line with this research is by Rachlis (2013) who stated that the age of 20-30 years is at risk of loss to follow-up of antiretroviral therapy and research conducted by Rice et al. (2011) also stated that women aged 15 to 34 are at risk of

loss to follow-up antiretroviral therapy and study conducted by Rosiana (2014) also stated that age has an effect on the loss of antiretroviral follow-up.

More male loss to follow up and more women did not. The analysis showed no gender effect on loss to follow-up of antiretroviral therapy. This is not in accordance with research by Blanco et al. (2015) that women have an effect on the loss to follow-up of antiretroviral therapy, a study by Govindasamy et al. (2012) also stated that male sex is at risk of loss to follow-up, a study by Rice et al. (2011) stated that women are at risk of loss to follow-up, and a study by Makunde et al. (2012) stated that women are at greater risk of loss to follow-up of antiretroviral therapy.

Senior high school education had a greater number of loss to follow up, whereas at the level of college education the number that did not loss was greater. This is not in accordance with research conducted by Meloni et al. (2014) which stated that increased risk of loss to follow-up antiretroviral therapy is associated with lower education.

The results showed no influence of job on loss to follow-up of antiretroviral therapy. This is not in line with the research conducted by Meloni et al. (2014) which stated that job with little income has influence on the increased risk of loss to follow-up of antiretroviral therapy and research by Widyant-hini (2014) which suggested that sex workers are at higher risk of loss to follow-up of antiretroviral therapy.

Income and therapy duration did not influence the loss of follow-up of antiretroviral therapy. This is not in accordance with research conducted by Meloni et al. (2014), which stated that less income increases the risk of loss follow-up.

Knowledge had no effect on loss to follow-up of antiretroviral therapy. This is not in accordance with research conducted by Rosiana (2014) which stated that the level of knowledge influences lost to follow-up in HIV/AIDS patients with antiretroviral therapy in Dr. Kariadi Hospital Semarang. According to research by Kristawansari (2014), knowledge is related to HIV/AIDS prevention behavior.

Deficient PLWHA intention was mostly loss to follow-up therapy. The results of the analysis showed that there was an association between intention and the loss of follow-up of antiretroviral therapy. No previous studies have suggested any effect between intention and loss to follow-up of antiretroviral therapy.

Deficient respondents' actions are mostly loss to follow-up antiretroviral therapy. The results of the analysis showed that there was an association between action and loss to follow-up of antiretroviral therapy. No previous studies have suggested any influence of action on loss to follow-up of antiretroviral therapy.

PLWHA with distance to Prof. Dr. WZ Johannes Kupang Public Hospital ≥ 20 km was largely not loss to follow-up of antiretroviral therapy and a small proportion failed, whereas a distance < 20 km was largely unsuccessful and a small proportion did not fail. The results showed no effect of distance of residence on loss to follow-up of antiretroviral therapy. No previous studies have suggested that there is influence of distance of residence and hospital on loss to follow-up of antiretroviral therapy. CST (Care, Support, and Treatment) at Prof. Dr. WZ Johannes Kupang Public Hospital service coverage is not only serving PLWHA domiciled in Timor-Leste but also PLWHA which is located in the surrounding islands within the East Nusa Tenggara province as in Alor Regency, Rote Ndao Regency, Sabu Raijua Regency.

PLWHA who used non-land transportation to Prof. Dr. WZ. Johannes Kupang Public Hospital were largely lost to follow-up of antiretroviral therapy. This is in accordance with Widyanthini (2014) which stated that the factors of patients include physical condition, mental, environmental and other social aspects is one of four factors that affect the loss to follow-up of antiretroviral therapy. PLWHA in accessing antiretroviral drugs at Prof. Dr. WZ Johannes Kupang Public Hospital partially live in small islands around the islands of Timor and Flores so as to come to Kupang City by sea transportation and even air transport followed by land transportation to Prof. Dr. WZ Johannes Kupang Public Hospital. In times of severe weather such as heavy rains with strong winds, ships and airplanes are likely to limit their operations. But with good anticipation then

the supply of antiretroviral drugs for every PLWHA in small islands is always sufficient.

The results showed that PLWHA which stated high transportation costs largely loss to follow-up, while PLWHA with low transportation costs largely did not. The result of the analysis showed that there was association between transportation cost to the loss of follow-up of antiretroviral therapy. No previous studies have suggested the effect of transport costs on loss to follow-up of antiretroviral therapy. PLWHA in accessing antiretroviral drugs at Prof. Dr. WZ. Johannes Kupang Public Hospital partially live on small islands around the islands of Timor and Flores so to come to Kupang City requires huge transportation costs. The cost of air transportation for PLWHA from Alor regency costs around Rp. 1,400,000-1,800,000 to go and forth, while PLWHA in Rote Ndao Regency costs around Rp. 900,000-1,500,000 to go and forth, so when experiencing a shortage of costs then PLWHA can not come to the hospital.

Several studies have shown that the role of peer companion has a positive effect on HIV/AIDS prevention (Kana, 2016). But in this study showed that there was no influence of the role of peer assistant against loss to follow-up of antiretroviral therapy in Prof. Dr. WZ. Johannes Kupang Public Hospital. This is not in line with research conducted by Siregar et al (2016), et al which stated that the support of peers will have low risk of loss to follow-up of antiretroviral therapy in Bandung.

CONCLUSION

Based on the study, it could be concluded that transportation and behavior were the major problems for the loss to follow up antiretroviral therapy in the islanded area. There were associations between intention ($p = 0.004$, OR = 4.667), self efficacy ($p = 0.0001$, OR = 7.875), action ($p = 0.0001$, OR = 45.000), transportation mode ($p = 0.046$, OR = 0.200), and transport costs ($p = 0.0001$, OR 19.333) and loss to follow up antiretroviral therapy.

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