

# Psychosocial Factors to Increase Adherence Antiretroviral Treatment on New PLWH Infection

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## Abstract

HIV become iceberg phenomenon. All HIV infected people have risk illness and die. Data of WHO 2018 were 37.9 million PLWH and 23.3 million on antiretroviral treatment. Every month about 8-15 new people got new HIV infection in Probolinggo district, Indonesia. HIV cumulative in Probolinggo at January 2018 were 1.140 people and only 60% ARV active and 15% lost to follow up. Many factors that influence adherence and many impact of it. The aim to analysis psychosocial factors to increase adherence antiretroviral treatment on New PLWH infection. This method use observational study. The population were 61 PLWH on ARV treatment in Clinic VCT Waluyo Jati General Hospital at January-May 2018, and sample were 54 people, systematic random sampling, instrument questionnaire, observational sheet, medical record, independent variable were level of knowledge, age, sex, ethnics, level of education, employment, dependent variable was adherence to take ARV, analysis logistic regression with SPSS 16.0.  $\alpha$  (0,05). The result that level of education ( $p=0.999$ ; prevalence ratio (PR)=0.000), duration of ARV treatment ( $p=0.210$ ; PR=2.988), level of knowledge ( $p=0.001$ ; PR=4.450). It means only level of knowledge can increase 4.450 times of adherence to take ARV. The conclusion was respondent that have good level of knowledge about antiretroviral schedule, risk, side effect, benefit, and outcomes influence adherence to take ARV than they have low level of knowledge. Health worker in Clinic VCT should conduct to increase counselling quality by giving about risk of ARV treatment, side effect, and all about ARV treatment and need social support to make them adhere to take ARV as doctors instruction.

**Keywords:** *Psychosocial, Adherence, Antiretroviral, PLWH.*

## Introduction

HIV become iceberg phenomenon and pandemic in the world.<sup>1</sup> All HIV infected people have risk illness and die. Antiretroviral (ARV) is an HIV-proven drug that can inhibit HIV replication so decrease the level of viral load in the blood infecting immune cells or CD4 increases, so immunity begins to recover or increase.<sup>1</sup>

Data of World Health Organization (WHO) 2018 were 37.9 million People Living with HIV (PLWH) and 23.3 million on antiretroviral treatment (ART).<sup>2</sup> Since HIV AIDS was first discovered in Bali-Indonesia from 1987 to December 2016, about 80% of HIV AIDS has spread in 80.2% of regencies and cities.<sup>3</sup> Based on this data that only 70.5% was getting ARV treatment in Indonesia.<sup>4</sup> Every month about 8-15 new people got new

HIV infection in Probolinggo district, Indonesia. HIV cumulative in Probolinggo at January 2018 were 1.140 people and only 60% ARV active and 15% lost to follow up. From 60% that ARV active, they were on adherence I (<3 dose forget to take it on 30 days, CD4 increase), adherence II (3-12 dose forget to take it on 30 days, CD4 increase), adherence III (>12 dose forget to take it on 30 days, CD4 decrease).<sup>5</sup>

Many factors that caused non adherence to take ARV were lack of knowledge about ARV, perceived susceptibility, perceived severity about ARV.<sup>5</sup> According to other researcher that belief, self efficacy, self concept, barriers about side effect, disclosure of their status, stigma and motivation.<sup>6,7,8</sup> Whereas, according to Holstad that adherence can influence by

self management, self efficacy, external motivation.<sup>9</sup>The impact of not adhere to take ARV as doctor instruction were resistance, failure treatment, and might make them drug poisoning.<sup>10</sup>

The aim of this study isto analysis psychosocial factors to increase adherence antiretroviral treatment on New PLWH infection.

### Materials and Method

Our study was used observational design and conducted as long as 2.5 months start on 6 November 2018– 8 January 2019. The population this study were 61 all PLWH on ARV in VCT Clinic Waluyoati General Hospital and sample were 54 respondent. The inclusion criteria, PLWH have age more than 15 years old, have low and midle economic status, stay on Probolinggo district, on treatment ARV between 2 weeks until 3 months, and willing to be respondent. The exclusion criteria, PLWH with TB positive and on treatment TB < 2 weeks;They ARV treatment were stopped by their doctors because of the drug’s side effects of systemic symptoms or organ dysfunction as well as hypersensitivity such as severe rash, impaired hepatic function. Data collection technique i.e respondentswho agreed to participate in our study signed a written informed consent after explaine the procedure and aim of this study.The instrument in this study were use quessionnaires to identify the characteristics of patient, observation sheets and medical records. Independent variable were age, sex, ethnics, level of education, employment, duration of ARV treatment (weeks), level of knowledge; dependent variable were adherence with indicators (schedule to follow up, dose and CD4 status). Data analysis was use logistic regression with SPSS 16.0 vertion.

**Findings:** Findings on this study conducted in the VCT Clinic of Waluyoati General HospitalProbolinggo District as long as for 2.5 months, and the result study can seeing on table 1-3. Base on the result study of the 54 samples that 79.6% respondents were age between 20-49 years old and mean 36 years old, 59.3% were female, 61.1% have ethnics madurese, 40.7% were level of education at junior high school and almost half of respondent were employment as house wife (33.3%), then most of respondent about duration of ARV medication between 2-8 weeks (64.9%), mean 6.61 weeks. Additionally, level of knowledge of respondent shows that 33.3% were good, mean 6.04. Base on CD4 status from 54 respondent that 9 respondent not check

CD4 because they don’t have Health Insurance and 45 respondent after checked CD4 status were 60% increase and 40% were decrease after drinking ARV (Table 1).

The increase in the number of CD4 patients can be caused by the initial CD4 count is not too low, so the respondent’s body ability to improve the immune system is easier than those who have early CD4 therapy. In addition, low CD4 patients will easy to suffer of opportunistic infections that can greatly reduce the patient’s condition. To start ARV treatment in patients who have health insurance based on CD4 values and in patients who have not checked CD4 because they do not have health insurance, initiation to start treatment ARV based on patient clinical stage and rapid test results obtained HIV positive results (Table2).

The result of logistic regressionshows that the education level has  $p > 0.05$  and the value of Prevalence Ratio (PR) = 0.000, while the duration of treatment ARV obtained  $p > 0.05$  and the value Prevalence Ratio (PR)= 2.988 as well as knowledge level obtained  $p < 0.05$  and the value of Prevalence Ratio (PR) = 4.450 so that it can be concluded that the level of education and duration of treatment of ARV does not affect the adherence of ARV medication while the level of knowledge of ARV affects compliance. The better the level of knowledge about ARV will increase compliance by 4.450 times (Table 3).

**Table 1: Caracteristics of respondent and Candidate Selection**

Caracteristics (n=54)	n (%)	p, mean*
Age (Years)		1.000
15-19	2 (3.7)	
20-49	43 (79.6)	
≥50	9 (16.7)	
Mean		36.15*
Sex		0.251
Male	22 (40.7)	
Female	32 (59.3)	
Ethnics		1.000
Javanese	20 (37.0)	
Madurese	33 (61.1)	
Others	1 (1.9)	
Level of education		0.180
Never/Elementary school	21 (38.9)	
Junior high school	22 (40.7)	
Senior high school	9 (16.7)	

Collage	2 (3.7)	
Employment		0.772
House wife	18 (33.3)	
Privat job	8 (14.8)	
Entrepreneur	13 (24.1)	
Labor	5 (9.3)	
Farmer	9 (16.7)	
Civil servants	1 (1.9)	
Duration of ARV treatment(weeks)		0.224
2-8	35 (64.9)	
9-12	19 (35.2)	
Mean		6.61*
Level of knowledge		0.001
1-2 (Very low)	1 (1.9)	
3-4 (Low)	17 (31.5)	
5-6 (Midle)	12 (22.2)	
7-8 (Good)	18 (33.3)	
9-10 (Very good)	6 (11.1)	
Mean		6.04*
CD4 Status **		0.000
Decrease	18 (40.0)	
Increase	27 (60.0)	
Adherence (dose and schedule)		-
Not Adhere	17 (31.5)	
Adhere	37 (68.5)	

\*\* n=45

**Table 2: Caracteristics adherence of respondent to take ARV treatment base on CD4 status**

CD4 Status	n (%)		Total (n=45)
	Not adhere	Adhere	
Decrease	16 (88.9)	2 (11.1)	18 (100.0)
Increase	0 (0.0)	27 (100.0)	27 (100.0)

**Table 3: Logistic Regression Influence of Level of Education, Duration of ARV treatment and Level of knowledge toward adherence**

Variable	p	Prevalence Ratio (PR)
Level of education	0,999	0,000
Duration of ARV treatment	0,210	2,988
Level of knowledge	0,001	4,450

### Discussion

The results of this study indicate the level of education and the duration of treatment of ARV has no

effect on the adherence of ARV treatment, whereas the level of knowledge about ARV affects adherence to ARV treatment. The highest level of education in this study is junior high school, duration of ARV treatment averages 6 weeks, the respondent’s level of knowledge was good about ARV and adherence about ARV in this study was measured through obedient dosages, schedule visits and the patient’s CD4 status although there are some patients who do not check CD4 when they start ARV treatment due to health insurance theirs status. CD4 status was use to check that any correlation about adherence by dosage and schedule visit status and CD4 count in their body.

Adherence is the extent which the patient can follow the instructions of health workers.<sup>3</sup> Factors that affect the adherence of ARV treatment i.e. communication between patients with doctors, patient knowledge about an ARV treatment, health facilities and other factors including individual factors, beliefs, support social support and healthcare personnel support.<sup>7</sup> Individual factors include the modification factor of age, gender, ethnicity, level of education, personality, socio-economic, knowledge, belief and trigger (cues to action).<sup>11</sup> The modification factor includes duraton of ARV treatment, religion, sex orientation, marital status.<sup>12</sup> and the supporting factors of compliance with ARV medications are internal factors including motivation, perception, level of knowledge, and external factors include service factors, social support factors of the family, support group or peer group, non-governmental organizations (NGOs), health worker and availability factors and the affordability of the drug.<sup>13</sup>

The level of respondents education and duration of ARV treatment does not necessarily affect of adherence. Whereas level of knowledge may affect of adherence to take ARV. Education in this study is a formal education pursued by individuals through a systematic process and gaining recognition from the government.<sup>14</sup> Although knowledge can be correlated with education, but not all knowledge is gained through formal education. The duration of ARV treatment is the length or number of days the individual follows the ARV treatment to the present.<sup>12</sup> Whereas level of knowledge is the result of know after a person does sensing against a particular thing or object. Knowledge can be a direct and indirect factor that can make their behavior.<sup>15</sup>

The result in this study, similar with other researcher, that levels of education have no effect on ARV treatment adherence. The results showed the level of education

of the majority respondent not at the college level and the greatest factor affecting the study was depression, conflict with spouse or partner as well as the maladaptive coping.<sup>16</sup> Additionally, education status does not affect the adherence of ARV treatment in both the intervention group and the control group. In their research socio economic or financial constraints were factors that affect adherence compared to the level of education. Financial constraints will cause respondents difficulty in accessing the transportation to go to the Clinic, so it impacts on the not adhere of respondents to take ARV.<sup>17</sup>

Duration of ARV treatment not affect of adherence. In this study, all respondent follow the ARV treatment between 2 weeks-3 months. At the beginning of ARV treatment between 2 weeks – 6 months, respondents tended to not be able to receive any side effects caused by ARV. Some types of ARV can cause side effects with different durations, such as the longer using the drug ARV of d4T (Stavudin), the more likely the effectiveness of the side effect.<sup>18</sup> Duration of ARV treatment with a range of 0-1 years, 2-6 years and 7-23 years proved to have no effect on adherence. It is a major influence on adherence of ARV treatment in their study i.e. anxiety and depression to initiate ARV treatment. Anxiety occurred due to lack of knowledge about ARV and depression occurred because of the still existence of stigma and discrimination against the PLWH.<sup>12</sup>

The level of knowledge in this study has an effect on adherence. The result of other study about “Difference between patients who do and do not adhere to antiretroviral therapy” shows that there were a difference level of knowledge in both groups between the care group and the ARV relapse group. The process of behavioral adaptation involves a person beginning with the conscious need of treatment because it has gained a particular knowledge of ARV treatment, a sense of interest in following treatment, the stage of evaluating interest on treatment and attempted and performed or behaved following the treatment of ARV. It means the better one’s knowledge, the more positive it will be.<sup>19</sup>

### Conclusions

In conclusions were level of education, duration of ARV treatment not influence toward adherence to take ARV, but level of knowledge about antiretroviral schedule, risk, side effect, benefit, and outcomes influence of adherence to take ARV than they have low level of knowledge. Health worker in Clinic VCT

include doctors, midwife and case manager should conduct to increase counselling quality by giving about risk of ARV treatment, side effect, and all about ARV treatment and need social support to make them adhere to take ARV as doctors instruction.

**Conflict of Interest:** This study didn’t have conflict of interest with General Hospital that become location of our study.

**Source of Findings:** This study have self findings by the authors.

**Etichal Clearance:** Prior to the research, an ethical approval was conducted by a reviewer of Health Science of Hafshawaty *Pesantren*(Islamic Boarding School) Zainul Hasan Probolinggo, East Java, Indonesia, with number: KEPK/318/STIKes-PZH/VIII/2018.

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