

ISSN-0976-0245 (Print) • ISSN-0976-5506 (Electronic)

Volume 11

Number 10

October 2020



Indian Journal of Public Health Research & Development

An International Journal

Website:

www.ijphrd.com

26. Relationship of Blood Vitamin-D Levels on Neoadjuvant Chemotherapy Response of Caf (Tumor Size Based on Ultrasonographic Examination) in Post Menopause Women With Locally Advance Breast Cancer in Dr. Soetomo General Hospital Surabaya 159
Arief Nur Rachmanto; Hantoro Ishardyanto; Iskandar Ali; Rosy Setiawati
27. Relationship between Vitamin D Receptor Expression with Vegf-A in Women with Metastatic Breast Cancer in Dr. Soetomo General Hospital Surabaya..... 166
Damian Dwi Rahadi; Hantoro Ishardyanto; Iskandar Ali; Willy Sandhika
28. Relationship of Obesity Recurrence Events in Triple Negative Breast Cancer Patients in Dr. Soetomo General Hospital Surabaya 172
Daniel Doli Haholongan; Iskandar Ali; Eddy Herman Tanggo
29. Effectiveness of Oral Care Using Normal Saline and Baking Soda Towards Pain and Comfort in Mucositis Patients Undergoing Chemotherapy..... 178
Eka Nugraha Naibaho, Ridha Dharmajaya , Ikhsanuddin A. Harahap
30. Awareness About Non-Communicable Diseases among Rural Population in Remote Villages of Nepal 185
Fr. Bobby Joseph Thadathil; S.J, Director of Rural Mobile Health Clinic, Nepal Jesuit Society
31. The Cross Cultural Adaptation and Psychometric Evaluation of the Bully Survey Swearer - Student Version (BYS-S) Indonesian version..... 192
Ghofur, A, Nurjannah, I, Rahmat, I
32. Is Low Birth Weight A Risk Factor For Early Childhood Caries? : A Nationwide Retrospective Cohort 199
Han-A Cho, Eun-Sil Choi
33. The Correlation between Meat Consumption with the Risk of Contracting Toxoplasma Gondii with the Occurrence of Patients with Toxoplasmosis in Bogor Aquatreat Clinic, Indonesia..... 205
Iif Syarifah, Helda
34. The Effects of Cogitive Therapy on Changes In Symptoms of Hallucinations in Schizophrenic Patients 212
Jek Amidos Pardede, Erwin Silitonga, Gustavus Endowment H Laia
35. Relationship of Albumin-Crp Ratio on Neoadjuvan Clinical Response of Caf Regimen Chemotherapy in Women with Locally Advance Breast Cancer in Rsud Dr. Soetomo..... 219
Lintong Darianto S. Damanik; Hantoro Ishardyanto
36. Quality of live of HIV / AIDS Patients for Loss to Follow Up Antiretroviral Therapy in Semarang, Indonesia 225
Tuti Susilowati, Tri Nur Kristina, Muchlis Akhsan Udji Sofro, Suhartono
37. Relationship between Mother Care Behavior and Quality of Life Stunting children in Kota Masohi District, Central Maluku Regency..... 232
Wa Nuliana, Lely Lusmilasari, Anik Rustiyaningsih

Quality of live of HIV / AIDS Patients for Loss to Follow Up Antiretroviral Therapy in Semarang, Indonesia

Tuti Susilowati^{1,2}, Tri Nur Kristina³, Muchlis Akhsan Udji Sofro^{4,5}, Suhartono⁶

¹Student Doctoral Program, Diponegoro University, Semarang, Indonesia, ²Researcher Permata Indonesia, Health Polytechnic Yogyakarta, Indonesia, ³Professor Faculty of Medicine, Diponegoro University, Semarang, Indonesia, ⁴Dr. Kariadi Hospital, Semarang, Indonesia, ⁵Assistant Professor Faculty of Medicine, Diponegoro University, Semarang, Indonesia, ⁶Associate Professor Departement on Environmental Health, Faculty of Public Health Diponegoro University, Semarang, Indonesia

Abstract

Introduction: Loss to Follow up (LTFU) Antiretroviral (ARV) therapy of HIV and AIDS will have an impact on their quality of life indicated by a decrease in CD4 cell counts.

Objective: The purpose of the study was to explore the quality of HIV and AIDS patients who were Loss to Follow up ARV therapy.

Methods: A retrospective cohort study design on 140 HIV/AIDS patients receiving ARV regimen therapy was recorded in the PDP service in Semarang City in the period of January 2015 – Oktober 2019, aged 18-65 years old, the sample consisted of two groups of Loss to Follow Up and retention group. Statistical analysis using survival analysis with cox regression 95% confidence interval.

Result: The result showed that the Loss to Follow Up patient with ARV therapy showed a risk to the quality of life (HR, 1.85; 95% CI, 1.110-3.098), a decrease in the quality of life of patient group Loss to Follow Up occurred at 48th months.

Conclusion: Loss to Follow Up ARV therapy will decrease the quality of patients with HIV/AIDS (ODHA), therefore it is necessary to improve counseling to commit the consistency in therapy.

Keywords: *Loss to Follow up, ARV Therapy, Quality of Life, CD4*

Introduction

Epidemiological studies show that the prevalence of diseases by the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) of the world is increasing, until the end of 2017, around 36.9 million people and 35.1 million people of them were adults and 940,000 people died. From these data,

21.7 million people received antiretroviral treatment and 59% of people living with HIV received antiretroviral treatment.^(1,2) Reports of HIV / AIDS cases in Indonesia, there were 291,129 cases, with the percentage of deaths 0.28%. Based on cumulative numbers up to January 2019, the highest number was in Papua (22,538), East Java (19,829), DKI Jakarta (9,932) Central Java (10,111) and West Java (6,749).⁽³⁾

Corresponding Author :

Sutaryono,

Associate Professor Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan Muhammadiyah, Indonesia, Jl. Ir. Soekarno Km.1, Buntalan, Klaten, Indonesia, e-mail: sutarreview@gmail.com

Efforts to improve the survival of people living with HIV / AIDS (PLWHA), one of which is through special treatment and therapy, namely the use of a combination of antiretroviral drugs (ARV).^(1,4,5) Although it has not been able to cure HIV completely and add challenges in terms of side effect and chronic drug resistance, ARV therapy has dramatically reduced mortality and

morbidity, improved the quality of life of PLWHA and raised community expectations, so that HIV and AIDS have been accepted as a disease that can be controlled and is no longer considered as a frightening disease.⁽⁶⁾ Benchmark of quality life or health status of PLWHA are the numbers of Clusters of differentiation 4 (CD4), besides that CD4 is also used as a monitor for ARV therapy response ARV.^(3,6-8)

Antiretroviral treatment (ARV) requires HIV/AIDS patients to be more consistent in taking medication for a lifetime, so it takes a high commitment from PLWHA to survive longer.⁽⁹⁻¹¹⁾ This has led to an increase in the discovery of cases of Loss to follow-up (LTFU), based on the HIV and AIDS Information System of the Indonesian Ministry of Health until September 2017 it was found data of LTFU 43,707 (22%), for Central Java from 2005 to August 2018 data Loss to Follow up: 3.227 people (23%).⁽³⁾

Research in Zambia and Switzerland on observations of three and a half years of therapy showed an LTFU percentage of 29.3% in patients starting ART with a CD4 count <100 cells/ml and 15.4% for patients starting with ≥ 350 cells/ mL.⁽¹²⁾ Several studies have shown a low CD4 cell count (<100-200 cell/ml) increases the risk of LTFU.^(10,13,14) It is different from a study in Ethiopia stating the use of AZT increases the risk of LTFU by three times compared to d4T regimen.⁽¹⁵⁾ PLWHA who received substitution of ARV regimen during the treatment period were at greater risk of LTFU (HR 5,2; 95% CI 3,6-7,3) similar to studies in India which reported that substitution could be a risk factor for failure of ART.⁽¹⁶⁾ The majority of cases of substitution regimens are caused by drug reactions, patients may become concerned about side effects and the effectiveness of new drugs given so they choose to look for other treatment options. The fear of side effect is the main cause of failure of LTFU.^(17,18)

The prevalence of LTFU in Indonesia is according to reports from the Ministry of Health of September

2017 which was 22,89% (43.707 people out of 190.980 people received ART. Whereas the prevalence of LTFU in Central Java up to 23% (3.227 people out of 5.926 people who were actively consuming ART drugs and in the city of Semarang, the prevalence of LTFU was 31%, almost 50% of LTFU patients were identified died.^(3,19) The study of LTFU assessment and survival in Indonesia is still limited, thus it need further research related the quality of life of PLWHA with Loss to Follow up using survival analysis method to see when a low quality of life (event) with CD4 parameters stated in the Hazard Ratio (HR).

Method

This research was conducted with a retrospective cohort design approach and survival analysis for events. Cohort studies are non-experimental analytic epidemiologic studies that examine the relationship between risk factors and effects or disease. In this research, the risk factors/causes were HIV / AIDS (PLWHA) patients who were LTFU on ARV treatment, while the effect/event was the low quality of life indicated by CD4 count <350 cells/m³. The population of the research was patients of HIV/AIDS who received ARV regimen therapy in PDP services in the city of Semarang in the period of January 2015 – Oktober 2019 and aged 18-65, the total size of the study sample was 140 patients. Statistical analysis used survival analysis with cox regression (Cox Proportional Hazard Model) 95% confidence interval.

Results

The total number of HIV/AIDS patients (PLWHA) receiving regimen therapy of ARV was recorded in the Care, Service, and Treatment (CST) Service in Semarang City of 216 people. Based on the retrospective cohort study period of January 2015 – October 2019, From 216 patients, 140 patients meet the criteria for a sample consisting, shown in table 1.

Table 1. The Baseline of Sociodemographic Characteristics Loss to Follow Up (LTFU) and Retention Patient of HIV / AIDS with ARV Therapy in Semarang

| Variable | Loss to Follow Up | | | | Event | | Log Rank |
|-------------------------------|-------------------|-----|----|-----|-------------|-----|-----------|
| | Yes | | No | | (CD4 < 350) | | (p-value) |
| | n | (%) | n | (%) | N | (%) | |
| Gender | | | | | | | |
| Male | 33 | 47 | 45 | 64 | 42 | 67 | 0,28 |
| Female | 37 | 53 | 25 | 36 | 21 | 33 | |
| Age | | | | | | | |
| 15 – 25 | 9 | 13 | 13 | 19 | 7 | 11 | 0,716 |
| 26 – 35 | 25 | 36 | 30 | 43 | 26 | 41 | |
| 36 – 45 | 21 | 30 | 20 | 29 | 20 | 32 | |
| > 45 | 15 | 21 | 7 | 10 | 10 | 16 | |
| Education | | | | | | | |
| Primary School | 10 | 14 | 14 | 20 | 7 | 11 | 0,423 |
| Junior High School | 12 | 17 | 11 | 16 | 11 | 17 | |
| Senior/vocational High School | 35 | 50 | 34 | 49 | 34 | 54 | |
| Tertiary School | 13 | 19 | 11 | 16 | 11 | 17 | |
| Job | | | | | | | |
| Unemployment | 18 | 26 | 23 | 33 | 15 | 24 | 0,499 |
| Employed | 52 | 74 | 47 | 67 | 48 | 76 | |
| Marital Status | | | | | | | |
| Not Married | 33 | 47 | 38 | 54 | 35 | 56 | 0,641 |
| Married | 37 | 53 | 32 | 46 | 28 | 44 | |
| Supervisory Drink Drug (SDG) | | | | | | | |
| Yes | 13 | 19 | 26 | 37 | 18 | 29 | 0,644 |
| No | 57 | 81 | 44 | 63 | 45 | 71 | |
| Comorbid | | | | | | | |
| No | 35 | 50 | 32 | 46 | 23 | 37 | 0,222 |
| Yes | 35 | 50 | 38 | 54 | 40 | 63 | |
| Quality of Life | | | | | | | |
| Retention | | | | | 37 | 59 | 0,025 |
| LTFU | | | | | 26 | 41 | |

* The Log-rank test (Mantel Cox) was used for all other characteristics

LTFU, Loss to Follow Up;

Male gender tends to experience a low quality of life (67%), this can be caused by Loss to Follow Up in committing ARV therapy (64%). Many of them are 26 – 35 years old experience Loss to Follow Up (43%) in antiretroviral therapy and they have CD4 <350 cells / m³ (41%). Patients with working status (67%) which ultimately tend to have a low quality of life (76%). Patients with married status are retention, meanwhile not married patients are LTFU (54%) therefore many

of them have low quality of life (56%). Supervisory Drink Drug (SDG) have an important role for patients' compliance to do therapy, the result of the research showed that patients with no SDG experience LTFU (63%) and have a low quality of life or CD4 count <350 cell/m³ (71%).

The final model of the analysis results with *cox regression (Cox Proportional Hazard Model)* can be seen in table 2.

Table 2. Results of the Cox Regression Analysis for overall survival

| No | Variable | Cox Regression | | |
|----|----------|----------------|----------|---------------|
| | | HR | p-value* | 95% CI |
| 1 | LTFU | 1,854 | 0,018 | 1,110 - 3,098 |

LTFU, Loss to Follow Up; HR, hazard ratio; CI, confidence interval

* The cox regression (Cox Proportional Hazard Model)

Pasien Loss to Follow Up with ARV therapy showed a risk to the quality of life (HR, 1.85; 95% CI, 1.110-3.098). Each patient has a different distribution of life length or different quality of life. Out of 140 patients observed, it showed that patients who had a low quality of life were marked as having CD4<350 cell/m³ (*event*) of 45%, while those who had a good quality life (*sensor*) of 55%. Median survival or time of decreasing quality of life at month 45.

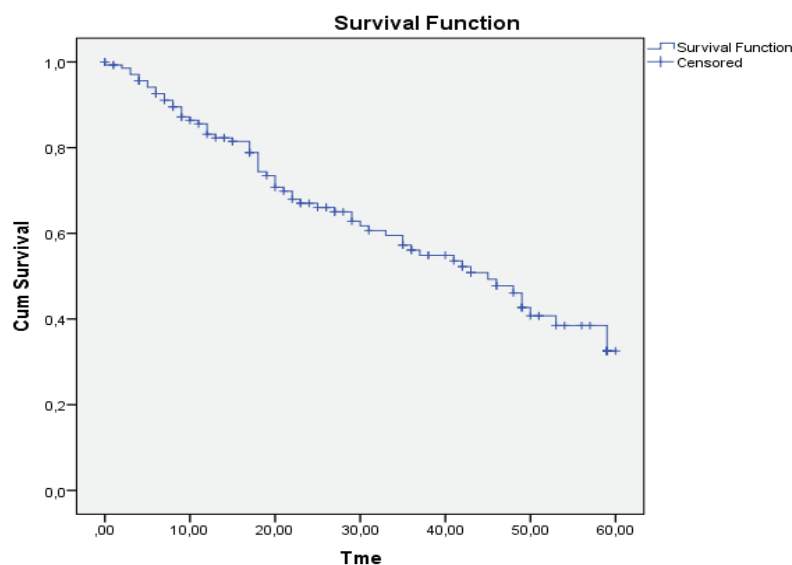


Figure 1. Probability Curve of Quality of Life for PLWHA

Median survival during the study period for the retention group experienced a decrease in quality of life at 39th months while the group Loss to Follow Up occurred at 48th months.

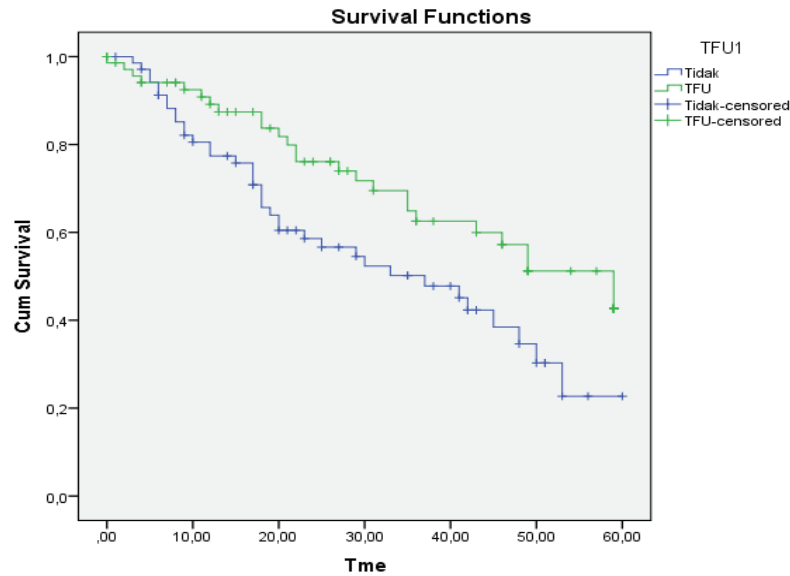


Figure 2. Probability Curve of Quality of Life for PLWHA Retention and Loss to Follow Up Group

Discussion

This research proves that Loss to Follow Up ARV therapy is at risk to CD4 (HR, 1.85; 95% CI, 1.110-3.098, p=0,018), and time off and time of decreasing quality of life is at 45th months. This research is in line with several studies in Zambia and Switzerland on observation of three and a half years of therapy showed an LTFU percentage of 29,3% in patients starting ART with a count of CD4 < 100 cell/ml and 15,4% for patients who starts with ≥ 350 cell/mL.⁽¹²⁾ Several studies have shown a low CD4 (<100-200 cell/ml) increases the risk of LTFU.^(13,20) CD4 gain at six months of treatment were both associated with retention.⁽²¹⁾

The Standard of antiretroviral therapy (ART) consists of a combination of the antiretroviral drug (ARV) to suppress HIV and stop the progression of HIV disease. Antiretroviral Therapy (ARV) require HIV/AIDS sufferers to be more consistent in taking medication for life, so it takes a high commitment from PLWHA to survive longer.^(7-11,22)

The results of this study indicate the reasons for LTFU patients related antiretroviral therapy are influenced by multy factors, this is also supported by their predisposing factors.⁽²³⁾ This was shown by patients whose LTFU turned out to have a CD4 cell count > 350 cells / mm³ more than retention patients, so they felt healthy and finally did not want any more ARV

therapy. However, in the 48 month, the study showed that LTFU patients experienced a decrease in quality of life indicated by a decrease in CD4 count <350 cells / mm³.

This research showed that loss to follow-up in the long term will give a negative impact on patients, namely a decrease in quality of life. That is because patients who are lost to follow-up do not get appropriate treatment for HIV and AIDS cases, the provision of ARV drugs and their clinical status, cannot be monitored. Estimates of the mortality rate are higher in patients with a follow-up of reaching 47.1% per year.⁽²⁴⁾ A Loss to Follow Up also resulted in serious consequences, such as treatment interruption, drug toxicity, treatment failure due to non-compliance, and drug resistance.⁷ Detectable p24 antigen concentration unlike viral load, no correlation found between p24 antigen concentration with ART status and length of therapy.⁽²⁵⁾

Conclusion

Loss to Follow Up ARV therapy will decrease the quality of patients with HIV/AIDS (PLWHA), therefore it is necessary to improve counseling to commit the consistency in therapy.

Conflict of Interest : NIL

Source of Funding: This study is financially supported by Ministry of Research and Technology,

Republic of Indonesia

Ethical Clearance: The research ethics was obtained from Ethics Committee Faculty of Public Health Diponegoro University Semarang, Indonesia (No.497/EA/KEPK-FKM/2019).

Acknowledgments : We would like to thank Directorate General of Ministry of Research, Technology and Higher Education of Republic Indonesia for support in this research, Director of the health care facilities RSUP dr Kariadi and ect in the study for giving the permission .We also thank all enumerators and lab technicians for assisting the data collection.

References

- UNAIDS. Indicators for monitoring the 2016 Political Declaration on Ending AIDS. UNAIDS 2018. 2018;
- Unaid CR. fast-track Cities ending the AIDS epidemic (Unaid |2016). 2016.
- Kes M, Hardhana B, Siswanti T, Sibuea F, Widiyanti W, Susanti MI, et al. Kemenkes 2018. Data dan Inf profil Kesehat Indones tahun 2019. 2018;
- Rama B, Syed-abdul S, Kumar A, Iqbal U. mHealth : An updated systematic review with a focus on HIV / AIDS and tuberculosis long term. *Comput Methods Programs Biomed* [Internet]. 2015;122(2):257–65.
- Tweya H, Oboho IK, Gugsu ST, Phiri S, Rambiki E, Banda R, et al. Loss to follow-up before and after initiation of antiretroviral therapy in HIV facilities in Lilongwe , Malawi. 2018;907:1–12.
- Thompson MA, Mugavero MJ, Rivet Amico K, Cargill VA, Chang LW, Gross R, et al. Guidelines for improving entry into and retention in care and antiretroviral adherence for persons with HIV. *Ann Intern Med*. 2012;156(11):817–33.
- Kemenkes. Rencana Aksi Nasional Pengendalian HIV dan AIDS Bidang Kesehatan Tahun 2015-2019. 2015;93.
- Department of Health and Human Services. Adults and Adolescents with HIV Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents with HIV Developed by the DHHS Panel on Antiretroviral Guidelines for Adults. 2019;
- McMullen CK, Safford MM, Bosworth HB, Phansalkar S, Leong A, Fagan MB, et al. Patient-centered priorities for improving medication management and adherence. *Patient Educ Couns* 2015;98(1):102–10.
- Yulidar, evy yunihastuti, Samsuridjal Djauzil, Astrid Citra Padmita SK. Factors Associated with Retention in Care One Year after Delivery in Patients Undergoing Prevention of Mother to Child Transmission (PMTCT) at RSCM. *J penyakit dalam Indonesia*. 2017;4(2):68–72.
- Torpey K, Ogbanufe O, Babatunde F, Mosuro O, Fajola A, Khamofu H, et al. Adherence and retention on antiretroviral therapy in a public-private partnership program in Nigeria. *J Int AIDS Soc*. 2012;15(6(Suppl 4)):1–9.
- Schöni-Affolter F, Keiser O, Mwangi A, Stringer J, Ledergerber B, Mulenga L, et al. Estimating loss to follow-up in HIV-infected patients on antiretroviral therapy: The effect of the competing risk of death in Zambia and Switzerland. *PLoS One*. 2011;6(12):2–8.
- Gerver SM, Chadborn TR, Ibrahim F, Vatsa B, Delpech VC, Easterbrook PJ. High rate of loss to clinical follow up among African HIV-infected patients attending a London clinic: A retrospective analysis of a clinical cohort. *J Int AIDS Soc*. 2010;13(1):1–10.
- Assemie MA, Muchie KF, Ayele TA. Incidence and predictors of loss to follow up among HIV-infected adults at Pawi General Hospital, northwest Ethiopia: Competing risk regression model. *BMC Res Notes* [Internet]. 2018;11(1):1–6.
- Anlay DZ, Alemayehu ZA, Dachew BA. Rate of initial highly active anti-retroviral therapy regimen change and its predictors among adult HIV patients at University of Gondar Referral Hospital, Northwest Ethiopia: A retrospective follow up study. *AIDS Res Ther*. 2016;13(1):4–11.
- Alvarez-Uria G. Factors associated with delayed entry into HIV medical care after HIV diagnosis in a resource-limited setting: Data from a cohort study in India. *PeerJ*. 2013;2013(1):1–10.
- Deribe K, Woldemichael K, Wondafrash M, Haile A, Amberbir A. Disclosure experience and associated factors among HIV positive men and women clinical service users in southwest Ethiopia. *BMC Public Health*. 2008;8:1–10.
- Sutini SH, Riyadi S, Bina A, Achsan M, Sofro

- U, Indonesia PP, et al. Internal Factors of People with HIV / AIDS Influencing the Inaccuracy of ARV Consumption in the Semarang , Semarang. 2018;69–73.
19. GOVT. Profil Kesehatan Provinsi Jawa Tengah 2017. Dinkes Jateng. 2017;3511351(24):1–62.
 20. Berheto TM, Haile DB, Mohammed S. Predictors of loss to follow-up in patients living with hiv/aids after initiation of antiretroviral therapy. *N Am J Med Sci.* 2014;6(9):453–9.
 21. Coly A, Kan Kouassi V, Dobe S, Agbo S, Nguessan J, Traore V. Factors associated with loss to follow-up among ART patients in Cote d’Ivoire. 20th Int AIDS Conf July 20-25, 2014, Melbourne, Aust. 2014;(January).
 22. Koole O, Tsui S, Wabwire-Mangen F, Kwesigabo G, Menten J, Mulenga M, et al. Retention and risk factors for attrition among adults in antiretroviral treatment programmes in Tanzania, Uganda and Zambia. *Trop Med Int Health.* 2014;19(12):1397–410.
 23. Susilowati T, Sutaryono, Kristina TN, Sofro MAU. Loss to Follow-Up Predisposition Factors in HIV and AIDS Patients with ARV Therapy. 2020;436:580–3.
 24. Ochieng-Ooko V, Ochieng D, Sidle JE, Holdsworth M, Wools-Kaloustian K, Siika A, et al. Influence of gender on loss to follow up in a large HIV treatment programme in western Kenya. *Bull World Health Organ.* 2010;88(9):681–8.
 25. Azizah N, Machin A, Hamdan M, Hamdan M. Low CD4 Level Increased the Risk of Cognitive Impairment in the HIV Patient. *Indian J. Public Heal. Res. Dev.*, pp. 2–6, 2020.