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Risk Factors for Loss to Follow-up of ARV Therapy among HIV/AIDS-infected Patients at Paniai Regency Public Hospital, Central Papua Province

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Abstract

Background: Human Immunodeficiency Virus (HIV) infection and AIDS are worldwide issues. In 2018, there were 37.9 million HIV-positive persons worldwide. In Indonesia, 88% of patients (244,142) who had received antiretroviral (ARV) were reported to have been lost to follow up, with up to 23% (55,508) being lost to follow up. Data from Paniai Regency Public Hospital, which is recorded up to 2021, out of 486 who have had ARV therapy, there are 169 (34.8%) loss to follow-up. **Objectives:** This study aimed to determine risk factors for loss to follow-up of antiretroviral (ARV) therapy among HIV/HIV-infected patients in Paniai Public Hospital, Paniai Regency, Central Papua Province. **Methods:** This type of research is analytic with a cross sectional study approach. The population is all HIV/AIDS patients receiving ARV therapy with a total sample of 190 people. Data were retrieved from medical record fields. Data were analyzed using chi square, at a significant level of 5%. **Result:** The results showed that the factors associated with loss to follow-up of ARV therapy at Paniai Regency Public Hospital were education (p-value 0.000; RP = 3.344; 95% CI (2.023 – 5.528), and occupation (p-value 0.000; RP = 2.338, 95% CI (1.663 – 3.288), while factors that were not related to loss to follow-up of ARV therapy were gender (p-value 0.310 or p > α (0.05); RP; 1.227; 95% CI (0.869 – 1.731) and duration of treatment (p-value 0.473; RP = 0.811; 95% CI (0.531–1.238).

Keywords: Risk Factors; Loss to Follow-up; ARV; HIV/AIDS.

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1. Introduction

Diseases like AIDS and the human immunodeficiency virus (HIV) are a major issue worldwide. The goal of eradicating HIV has been set by communities worldwide [1]. The third Sustainable Development Goal (SDG) of the SDGs, which calls for eradicating the epidemics of AIDS, tuberculosis, malaria, and other tropical diseases as well as battling hepatitis, water-borne illnesses, and other infectious diseases by 2030, outlines one form of this commitment.

In 2018, there were 37.9 million HIV-positive individuals living in the world. 36.2 million of them were over the age of 15, and 1.7 million were under the age of 15. There were 22,600 HIV cases recorded in 2019 as of June. Even though there have been fewer recorded cases of HIV infection countrywide, many people are still struggling to deal with the disease [1]. This was demonstrated by the fact that 23% of antiretroviral therapy (ARV) patients (n = 55,508), or 88% of patients (244,142), reported being lost to follow-up [2].

Loss to follow-up in HIV/AIDS patients causes therapy to be stopped and raises the chance of death [3]. Increasing treatment discontinuation and lower mortality in urban than in rural areas are two effects of lost to follow-up in HIV/AIDS patients [4]. Identification and analysis of the key variables that significantly affect HIV patients' incidence of lost to follow-up are required in order to avoid this.

Antiretrovirals (ARVs) have been recognized worldwide as drugs that can be used to treat HIV/AIDS. However, ARVs have not been able to completely cure HIV. ARVs are useful for reducing the risk of HIV transmission, preventing the worsening of opportunistic infections, improving the quality of life for people with HIV, and reducing the amount of virus (viral load) in the blood until it is undetectable. ARVs work by controlling the replication process of HIV which attacks the immune system by making fake copies of DNA. It makes HIV appear like a normal part of the body that is not threatening, so that the immune system cannot detect the virus and the presence of HIV in the body remains safe. To get the benefits of ARVs, people with HIV must take the drug for life. Because, if not, the growth of the virus in the body is not controlled and drug resistance can also arise. However, before taking ARVs, sufferers must first consult a doctor. Patients who are going to use ARVs must also have someone who can remind them to always take medication or what is commonly called a Drug Taking Monitor. In Indonesia, this has been regulated by the Ministry. Although it has not been able to completely cure HIV, so far it is believed that ARV therapy can reduce mortality and morbidity, improve the quality of life for PLWHA, and increase people's expectations. At the very least, ARVs bring a new image of AIDS, namely as a disease that can be controlled and is no longer considered a frightening disease [5].

Papua is entering a widespread epidemic with HIV prevalence 2.3%, so that a Continuous Comprehensive Service was developed by involving the active role of the community with an ARV drug delivery strategy approach as prevention and treatment of HIV infection. Patients diagnosed with HIV/AIDS are immediately given ARV therapy without adequate pre-counseling of ARV, because the level of the epidemic is getting wider.

According to the official report from the integrated clinic section of the Paniai Regency Public Hospital, from 2018 to 2021 there were 6,952 people with HIV/AIDS (PLWHA), with details in 2018 there were 1,755 cases,

in 2019 there were 2,121 cases, in 2020 there were 1,877 people, in 2021 there were 1,199 person. A total of 976 people had been initiated on Anti Retro Virus (ARV) pre-treatment, and 486 of them had had ARV therapy. Of the 486 who have had ARV therapy, 169 have dropped out/lose to follow-up (LFU) in 2021 [6].

Research conducted by Adiningsih (2018) in Jayapura found that gender, occupation, experience of stigma and access to health services had an effect on the loss to follow-up of ARV therapy [7]. Research conducted by Kusdiyah (2022) stated that the factors that influence loss to follow-up are knowledge, attitudes of HIV patients with their adherence to taking ARV therapy, age, gender, education level, occupation, length of therapy, social support from family, and health services [8]. Berlianty's research (2018) found that the factors influencing drug withdrawal were low education, the presence of opportunistic infections and clinical stages [9]. Handayani's research (2018) found risk factors for loss to follow-up ARV therapy which were found to be students, home distance ≥10 km, using health insurance [10].

The reason the researcher chose this title is because loss to follow-up ARV therapy is a situation where patients are not regularly present to take medication. This is very important because people living with HIV who do not come to take ARVs will increase the risk of infection and death. Based on the background above, the researcher is interested in conducting research with the title "Risk Factors for Loss to Follow-up of ARV Therapy among HIV/AIDS-infected Patients at the Paniai Regency Public Hospital, Central Papua Province".

2. Methods

This type of research is an analytic observational study using a cross-sectional study design, namely data collection is carried out simultaneously at one time [11]. This study used secondary data from the medical records of people living with HIV at Paniai Regency Public Hospital. This research was conducted at the Paniai Regency Public Hospital Integrated Clinic in November - December 2022. The population in this study were all HIV/AIDS patients who had been initiated on ARVs at the Integrated Clinic until September 2022, totaling 190 people. The sample in this study used a total sampling of 190 patients. Data analysis was using chi-square with significant level of 5%.

3. Results

3.1. The relationship between the gender and loss to follow-up of ARV therapy

Table 3.1: The relationship between Gender and Loss to Follow-up of ARV therapy among HIV/AIDS-infected Patients at the Paniai Regency Public Hospital, Central Papua Province.

Gender	Loss to Follow-up				Total	%
	Loss		Success			
	n	%	n	%		
Male	40	44.9	49	55.1	89	100
Female	37	36.6	64	63.4	101	100
TOTAL	77	40.5	113	59.5	190	100

P-value = 0.310; RP=1.227; CI 95% (0.869-1.731)

Source: Primary data, 2022

Table 3.1 shows that of the 89 patients who were male, 40 (44.9%) lost to follow-up ARV therapy and 49 people (55.1%) did not lose to follow-up ARV therapy. Meanwhile, out of 101 female patients, 37 patients (36.6%) lost to follow-up ARV therapy and 64 patients (63.4%) did not lose to follow-up ARV therapy. The results of the chi square statistical test obtained a p-value of 0.310 > α (0.05), so there was no relationship between gender and loss to follow-up ARV therapy at Paniai Regency Public Hospital. Based on the value of RP; 1.227; 95% CI (0.869 – 1.731), which includes the number 1 at the lower and upper limits, is interpreted as having no statistically significant relationship between gender and loss to follow-up ARV therapy.

3.2. The relationship between the level of education and the loss to follow-up of ARV therapy

Table 3.2: The relationship between the level of education and the Loss to Follow-up of ARV therapy among HIV/AIDS-infected Patients at the Paniai Regency Public Hospital, Central Papua Province.

Level of Education	Loss to Follow-up				Total	%
	Loss		Success			
	n	%	n	%		
Low	63	57.8	46	42.2	109	100
High	14	17.3	67	82.7	81	100
TOTAL	77	40.5	113	59.5	190	100

P-value = 0.000 < 0,001; RP=3.344; CI 95% (2.023-5.528)

Source: Primary data, 2022

Table 3.2 shows that out of 109 patients with low levels of education, 63 (57.8%) lost to follow-up ARV therapy, and 46 patients (42.2%) did not lose to follow-up ARV therapy. Meanwhile, out of 81 highly educated, 14 patients (17.3%) lost to follow-up ARV therapy, and 67 people (82.7%) did not lose to follow-up ARV therapy. The results of the chi square statistical test obtained a p-value of 0.000 <α (0.05), thus there is a significant relationship between education and loss to follow-up ARV therapy at the Paniai Regency Public Hospital. Based on the value of RP = 3.344; 95% CI (2.023 – 5.528) which is interpreted that HIV/AIDS patients with low education have a risk of loss to follow-up ARV therapy 3.344 times higher than HIV/AIDS patients with higher education.

3.3. The relationship between the level of occupation and the loss to follow-up of ARV therapy

Table 3.3: The relationship between the Occupation and the Loss to Follow-up of ARV therapy among HIV/AIDS-infected Patients at the Paniai Regency Public Hospital, Central Papua Province.

Occupation	Loss to Follow-up				Total	%
	Loss		Success			
	n	%	n	%		
Jobless	44	63.7	25	36.3	69	100
Work	33	27.3	88	72.7	121	100
TOTAL	77	40.5	113	59.5	190	100

P-value = 0.000 < 0,001; RP=2.338; CI 95% (1.663-3.288)

Source: Primary data, 2022

Table 3.3 shows that out of 69 patients who were jobless, 44 (63.7%) lost to follow-up ARV therapy, and 25 patients (36.3%) did not lose to follow-up ARV therapy. Meanwhile, out of 121 who were work, 33 patients (27.3%) lost to follow-up ARV therapy, and 88 patients (72.7%) did not lose to follow-up ARV therapy. The results of the chi square statistical test obtained a p-value of 0.000 < α (0.05), thus there is a significant relationship between occupation and loss to follow-up ARV therapy at the Paniai Regency Public Hospital. Based on the value of RP = 2.338; 95% CI (1.663 – 3.288) which is interpreted that HIV/AIDS patients who were jobless have a risk of loss to follow-up ARV therapy 2.338 times higher than HIV/AIDS patients who were work.

3.4. The relationship between the Length of therapy and the loss to follow-up of ARV therapy

Table 3.4: The relationship between the Length of therapy and the Loss to Follow-up of ARV therapy among HIV/AIDS-infected Patients at the Paniai Regency Public Hospital, Central Papua Province.

Length of therapy	Loss to Follow-up				Total	%
	Loss		Success			
	n	%	n	%		
> 6 months	63	39,1	98	60,9	161	100
≤ 6 months	14	48.3	15	51.7	29	100
TOTAL	77	40.5	113	59.5	190	100

P-value = 0.473; RP=0.811; CI 95% (0.531-1.238)

Source: Primary data, 2022

Table 3.4. showed that out of 161 patients with treatment duration > 6 months, 63 patients (39.1%) lost to follow-up ARV therapy, and 98 patients (60.9%) did not lose to follow-up ARV therapy. Meanwhile, of the 29 patients with treatment duration ≤ 6 months, 14 patients (48.3%) lost to follow-up ARV therapy, and 15 patients

(51.7%) did not lose to follow-up ARV therapy. The results of the chi square statistical test obtained a p-value of 0.473 > α (0.05), thus there was no significant relationship between length of treatment > 6 months and loss to follow-up of ARV therapy at Paniai Regency Public Hospital. Based on the value of RP; 0.473; 95% CI (0.531 – 1.238), which includes the number 1 at the lower and upper limits, is interpreted as having no statistically significant relationship between the length of therapy and loss to follow-up of ARV therapy

4. Discussion

4.1. The relationship between gender and loss to follow-up of ARV therapy

The results showed that there was no significant relationship between gender and loss to follow-up of ARV therapy at Paniai Regency Public Hospital. In line with Manowati's research (2019) that gender is not a significant factor related to the incidence of loss to follow-up of ARV therapy [12].

According to the frequency of PLHIV patients at Paniai Regency Public Hospital, men made up up to 44.9% of those who lost to follow-up ARV therapy, while women made up up to 36.6%. According to Fadillah's research conducted in Makassar in 2021, non-compliance is 1.5 times more prevalent among women than it is among males for a variety of reasons, including women's evidence that marital status, particularly that of those who are married, is linked to low compliance. In addition to the biological disparities, women with HIV frequently experience doubling, have limited access to healthcare, report lower household incomes, and voice other issues that HIV-positive men typically do not [13].

Even though it was not significantly related to the incidence of loss to follow-up ARV therapy, the results showed that the percentage of patients with loss to follow-up ARV therapy in PLHIV patients at Paniai District Hospital was more male. This research is in line with another study by Fauziyah (2019) which stated that men are more at risk for disobedience and loss to follow-up in undergoing ARV therapy, because women tend to pay more attention to health problems [14]. In addition, there have been special health services for women, especially reproductive and child health issues, while there are no health services specifically for men [12].

Due to women's nurturing nature, which prefer to seek out friends for socializing, support, and things that can help them feel better when they are upset, there is a reduced loss to follow-up for ARV therapy in comparison to men. Men prefer to solve their own problems or find solutions. For instance, due to differences in antiretroviral medication metabolism (ARV) between men and women, women are more likely to delay taking ART, have a greater incidence of discontinuing therapy, experience more side effects, and have higher increases in viral load [14].

4.2. The relationship between the level of education and the loss to follow-up of ARV therapy

The results showed that there was a significant relationship between education and loss to follow-up ARV therapy at Paniai District Hospital. When viewed from the value of RP = 3.344; 95% CI (2.023 – 5.528) which is interpreted that HIV/AIDS patients with low education have a risk of loss to follow-up ARV therapy 3.344 times higher than HIV/AIDS patients with higher education.

Previous research by Berlianty (2018) in the city of Semarang found the same thing that education level was significantly related to loss to follow-up ARV therapy [9]. Education is very closely related to knowledge that influences one's mindset. The higher a person's level of education, the better the knowledge he has. HIV patients with higher education tend to think in the long term, think about the threats they will get if they don't continue therapy, more easily accept information either from the mass media, campaigns, or other people's advice so that it influences their behavior in taking therapy [10]. Most of the HIV/AIDS patients at the Paniai Regency Public Hospital have low education. Respondents who dropped out of treatment with low education levels were 57.8% and respondents with higher education were 17.3%. Respondents with higher levels of education tended to have a more aware attitude towards disease as public awareness increased regarding HIV/AIDS. Individuals with higher education tend to have better cognitive abilities to receive and seek information related to disease and its treatment. The level of education is also related to self-management skills for dealing with illness and various other problems, facilitating access to information, increasing the ability of patients to perform problem solving and active decision making related to their disease. Respondents who are highly educated may have better incomes so that they live in more stable financial conditions. Higher incomes can make PLWHA feel fulfilled in carrying out their daily lives thereby increasing their quality of life.

4.3. The relationship between the level of occupation and the loss to follow-up of ARV therapy

The results showed that there was a relationship between work and loss to follow-up ARV therapy at Paniai District Hospital. The RP value obtained is interpreted to mean that people with HIV/AIDS who are not working have a risk of loss to follow-up ARV therapy 2.388 times higher than people with HIV/AIDS who are working. Occupation and economic status are correlated; the better the economic status, the greater the individual's capacity to meet their demands. Since employment is typically a person's primary source of money, being unemployed causes PLWHA additional stress in their daily lives. This may also be connected to a person's amount of independence, their reliance on other people, and other aspects of their quality of life.

Work is something that is done to make a living, livelihood [15]. The work environment can make a person gain experience and knowledge, both directly and indirectly. Work can be obtained from formal and non-formal jobs. Formal jobs such as jobs in government or private agencies or institutions (PNS, BUMD employees, TNI/POLRI), while non-formal jobs that have no connection with institutions or in other words are self-employed such as farmers, laborers and others. Meanwhile, activities or activities that do not generate income are not called jobs such as housewives [11]. Geographical restrictions for PLWHA patients in Paniai Regency make it difficult for them to access health services, and this is exacerbated by the absence of transportation infrastructure and the associated transportation costs needed to obtain ARV drugs, even though ARV drugs are provided free of charge [16].

4.4. The relationship between the Length of therapy and the loss to follow-up of ARV therapy

According to the findings, there was no correlation between the duration of ARV therapy at Paniai District Hospital and loss to follow-up. The prevalence ratio values' findings also demonstrate that the duration of treatment does not increase the probability of failure to initiate subsequent ARV therapy.

The length of therapy was not substantially connected to adherence to taking ARV medicine in HIV/AIDS patients, according to Sigalingging's study (2022) in Jambi [17]. This is a result of low medication adherence in HIV patients who take ARV medicines due to monotony and boredom, both caregivers and HIV patients, who must take the same medication every day and cannot miss anything for the rest of their lives.

Loss to follow-up ARV therapy is not correlated with the length of treatment. According to the researchers' observations, both new and old patients who received ARV medication therapy experienced side effects, however some individuals did not. Additionally, patients with advanced HIV/AIDS who have just received a diagnosis using old criteria for new medication experience severe side effects.

Patients who are well-informed will continue to take ARV medications for their own health even though they have adverse effects and have been taking medicine for a long period. Given that this prescription must be taken for the rest of one's life, patients who are disobedient to both old and new patients frequently lack confidence and run the risk of not taking their medication as prescribed [9].

5. Conclusion

Based on the results of the discussion it can be concluded as follows:

a. There is no significant relationship between gender and loss to follow-up ARV therapy at Paniai Regency Public Hospital (p-value 0.310 > α (0.05); RP; 1.227; CI95% (0.869 – 1.731).
b. There is a significant relationship between education and loss to follow-up ARV therapy at Paniai Regency Public Hospital (p-value 0.000; RP = 3.344; 95% CI (2.023 – 5.528).
c. There is a relationship between work and loss to follow-up ARV therapy at Paniai Regency Public Hospital (p-value 0.000; RP = 2.338; 95% CI (1.663 – 3.288).
d. There was no significant relationship between length of treatment and loss to follow-up ARV therapy at Paniai Regency Public Hospital (p-value 0.473; RP = 0.811; 95% CI (0.531–1.238).

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