

Analysis Factors Affecting the Utilization of Antiretroviral Treatment Services in HIV Patients in Ambon City Puskesmas

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ABSTRACT

Acquired Immune Deficiency Syndrome (AIDS) is a collection of symptoms that arise due to decreased immunity caused by HIV infection. Human Immunodeficiency Virus (HIV) is a type of virus that infects white blood cells which causes a decrease in human immunity. Efforts are being made at this time for people with HIV namely Antiretroviral treatment (ARV). This study aims to analyze the factors that influence the utilization of ARV treatment services in HIV patients at the Ambon City Health Center. This type of research is a quantitative analytic study with a cross sectional design. Respondents in this study were obtained using the Isaac and Michael method of 156 HIV patients from the Waihaong Health Center and Karpan Health Center in Ambon City using a questionnaire. Data processing was carried out using SPSS and for data analysis using statistical tests using descriptive statistical tests, comparative analysis tests and multivariate analysis tests. The results showed that there was no effect of knowledge on the use of ARV treatment in HIV patients at the Ambon City Health Center. Furthermore, there is an influence on the patient's actions, access distance, and peer and community support on the use of ARV treatment in HIV patients at the Ambon City Health Center. The action variable and access distance are the variables that have the strongest influence compared to the other variables.

Key words: AIDS, HIV, ARV, Utilization, Puskesmas.

INTRODUCTION

Health is a Human Right (HAM) and the most important aspect in the development of a country. Health is explicitly mandated in the 1945 Constitution. One of the health problems that is still of particular concern in Indonesia and has received more attention from the World Health Organization (WHO) is HIV/AIDS. Indonesia was declared the country with the fastest rate of spread of HIV/AIDS in Asia.¹

Based on data from the World Health Organization (WHO), around 79,3 million people have been infected with the HIV virus and 36,3 million people have died from HIV since the beginning of the epidemic. Globally at the end of 2020, it was recorded that 37,7 million people were living with HIV and resulted in the death of 680 thousand. The biggest HIV in the world is on the African continent (25,7 million people), then in Southeast Asia (3,8 million) in Indonesia as many as 50,282 people, and in America (3,5 million). While the lowest was in the West Pacific with 1,9 million people.²

The phenomenon of people with HIV/AIDS tends to increase in both developed and developing countries, including Indonesia (Nurwati, 2019). The number of HIV cases reported in Asia in 2021 is 410,000 people living with HIV, and among them there are 69,000 who are newly infected. Then 150,000 teenagers infected with HIV. Prevention of mother-to-child transmission at a coverage of 49% [39-61%] is far below the global average of 81% [63-97%].³

Every year, the number of HIV cases reported in Indonesia from 2005 to March 2021 tends to

increase. The cumulative number of HIV cases reported until March 2021 was 427,201 (78.7% of the target of 90% estimated ODHA in 2020 of 543,100).⁴

Ambon City is an area with the highest prevalence of HIV/AIDS in Maluku province. Every year, this area experiences an increase in cases. The number of additional HIV/AIDS cases recorded in the last three years in Ambon City is 309 cases in 2019, 273 cases in 2020, and 183 cases in 2021.⁵

The increasing number of HIV cases is a challenge in health development. Outreach and compliance are still major challenges especially in remote and difficult to reach areas. So, the steps taken are to make several regions make Puskesmas as satellites for ARV treatment from the hospital within the framework of the Continuous Comprehensive HIV-IMS Service.⁴

The discovery of new cases and treatment was found in several health centers spread across several regions of Indonesia, especially in Ambon City. Waihaong Health Center is one of the health centers in the Ambon City area. based on data, there were 78 new cases in 2019, 57 new cases in 2020, and 47 new cases in 2021.⁵

Efforts are being made at this time for people with HIV namely Antiretroviral treatment (ARV). ARV administration is able to suppress the amount of virus (viral load), thereby increasing the immune status of HIV patients and reducing deaths from opportunistic infections. The use of ARVs has succeeded in reducing the number of deaths related to HIV/AIDS from 1.5 million in 2010 to 1.1 million in 2015.⁶

The main factor in achieving successful treatment of HIV infection is adherence. Compliance with taking ARVs is the most important factor in reducing the

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amount of HIV virus in the human body, namely taking medication according to the dose, never forgetting, on time, and never stopping.⁷ To deal with the HIV epidemic, HIV-AIDS prevention and control efforts are more intensive, comprehensive, integrated and coordinated, to produce programs with high coverage, effective and sustainable.⁸

Patient non-adherence in treatment related to lost to follow up. Lost to follow-up ARV therapy are patients who have not visited the VCT clinic for treatment for 90 days since their last visit or have dropped out of treatment for 3 consecutive months. ODHA who stop taking therapy will be at greater risk of death.⁹

MATERIALS AND METHODS

The type of research used in this study was a quantitative research method with a cross-sectional design with the aim of knowing the Factors Influencing the Utilization of ARV Treatment Services in HIV Patients at the Ambon City Health Center. The locations in this study were at the Waihaong Health Center and the Karpan Health Center in Ambon City. The time for conducting the research is planned to be carried out in November-December 2022. The sample in this study was 156 HIV patients. The research instrument used was a questionnaire. Data analysis used statistical tests using univariate analysis tests, bivariate analysis tests and multivariate analysis tests.

RESULTS

Univariate analysis

Based on the table above the frequency distribution of the knowledge variable is good as many as 132 (84,6%) respondents, while those who are not good are 24 (15,4%) respondents. Furthermore, the good action variable is 151 (96,8%), while those who assess the action as unfavorable are 5 (3,2%) respondents. Furthermore, the variable distance to access to service points, as many as 37 (23,7%) respondents who rated access to service points as affordable. Then for the peer support variable, there were 129 (82,7%) respondents who received peer support, while those who did not receive peer support were 27 (17,3%) respondents.

Table 1: Univariate analysis.

Variable	Frequency (n)	Percentage(%)
Knowledge		
Good	132	84,6
Not good	24	15,4
Action		
Good	151	96,8
Not good	5	3,2
Service Place Access Distance		
Affordable	37	23,7
Unreachable	119	76,3
Peer support		
Support	129	82,7
Does not support	27	17,3
Total	156	100

Source: Primary Data, 2022

Table 2: The effect of patient knowledge on the utilization of ARV treatment in HIV patients at the Ambon city health center.

Knowledge	Use of ARV Treatment				Total		P
	Utilise		Less Utilizing		N	%	
	n	%	n	%			
Good	123	93,2	9	6,8	132	100	p= 1,00
Not good	23	95,8	1	4,2	24	100	
Total	146	93,6	10	6,4	156	100	

Source: Primary Data, 2022

Table 3: The effect of patient actions on the utilization of ARV treatment in HIV patients at the Ambon city health center.

Action	Use of ARV Treatment				Total		P
	Utilise		Less Utilizing		n	%	
	n	%	n	%			
Good	144	95,4	7	4,6	151	100	p= 0,002
Not good	2	40	3	60	5	100	
Total	146	93,6	10	6,4	156	100	

Source: Primary Data, 2022

Table 4: The effect of access distance to service points on the utilization of ARV treatment in HIV patients at the Ambon city health center.

Service Place Access Distance	Use of ARV Treatment				Total		p
	Utilise		Less Utilizing		N	%	
	n	%	N	%			
Affordable	31	83,8	6	16,2	37	100	p= 0,012
Unreachable	115	96,6	4	3,4	119	100	
Total	146	93,6	10	6,4	156	100	

Source: Primary Data, 2022

Table 5: The effect of peer support on the utilization of ARV treatment in HIV patients at the Ambon city health center.

Peer support	Use of ARV Treatment				Total		P
	Utilise		Less Utilizing		N	%	
	n	%	N	%			
Support	124	96,1	5	3,9	129	100	p= 0,015
Does not support	22	81,5	5	8,5	27	100	
Total	146	93,6	10	6,4	156	100	

Source: Primary Data, 2022

Table 6: Results of multivariate analysis of patient measures and access distance to the use of ARV treatment in HIV patients at the Ambon city health center.

No.	Variable	B	Sig	Exp (B)	95% C.I. for Exp (B)	
					Lower	Upper
1.	Tindakan Pasien	3,539	0,001	34,425	4,056	292,198
2.	Jarak Akses	-1,797	0,017	0,166	0,038	0,730
	Constant	-3,696	0,014			

Bivariate analysis

The effect of patient knowledge on the use of ARV treatment in HIV patients at the Ambon City Health Center.

Based on table 2 above, which is the influence of patient knowledge on the use of ARV treatment. The level of patient knowledge is categorized into good and not good. Respondents with a good level of knowledge and utilizing ARV treatment were 123 (93.2%) respondents, while those who did not utilize ARV treatment were 9 (6.8%) respondents. Furthermore, respondents with a poor level of knowledge and utilizing ARV treatment were 23 (95.8%) respondents, while those who did not utilize ARV treatment were 1 (4.2%) respondent.

The results of the relationship test showed a p-value of 1.00 which was greater than an alpha of 0.05 so it was concluded that there was no effect between the level of patient knowledge on the use of ARV treatment in HIV patients at the Ambon City Health Center (p=1.00>0.05).

The effect of action on the utilization of ARV treatment in HIV patients at the Ambon City Health Center.

Based on table 3 above, which is the effect of action on the utilization of ARV treatment. The level of action is categorized into good and bad. Respondents with good behavior and taking advantage of ARV treatment were 144 (95.4%) respondents, while those who did not take

advantage of ARV treatment were 7 (4.6%) respondents. Furthermore, respondents with unfavorable actions and utilizing ARV treatment were as many as 2 (40%) respondents, while those who did not take advantage of ARV treatment were as many as 3 (60%) respondents.

The results of the relationship test showed a p-value of 0.002 which was smaller than an alpha of 0.05 so it was concluded that there was an effect between the action on the use of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.002<0.05$).

The effect of distance to access to service points on the utilization of ARV treatment in HIV patients at the Ambon City Health Center.

Based on table 4 above, which is the effect of the distance from access to health services to the utilization of ARV treatment. The level of access distance is categorized into reachable and unreachable. Respondents who stated that the distance to access health services was affordable and utilized ARV treatment were 31 (83.8%) respondents, while those who did not utilize ARV treatment were 6 (16.2%) respondents. Furthermore, there were 115 (96.6%) respondents who stated that the distance to access health services was unreachable and that they used ARV treatment, while those who did not take advantage of ARV treatment were 4 (3.4%) respondents.

The results of the relationship test showed a p-value of 0.012 which was smaller than an alpha of 0.05 so it was concluded that there was an effect between the distance of access to health services and the utilization of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.012<0.05$).

The effect of peer support on the use of ARV treatment in HIV patients at the Ambon City Health Center

Based on table 5 above, which is the influence of peer support on the use of ARV treatment. Peer support is categorized into supportive and unsupportive. There were 124 (96.1%) respondents who stated that they had peer support and used ARV treatment, while 5 (3.9%) respondents did not take advantage of ARV treatment. Furthermore, 22 (81.5%) respondents said they did not get peer support and took advantage of ARV treatment, while 5 (8.5%) respondents did not take advantage of ARV treatment.

The results of the relationship test showed a p-value of 0.015 which was smaller than an alpha of 0.05 so it was concluded that there was an influence between the attitudes of health workers on the use of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.015<0.05$).

Multivariate analysis

Based on the table above, it can be seen that the patient's actions and access distance have a significant effect on the utilization of ARV treatment in HIV patients at the Ambon City Health Center. This is consistent with the results of bivariate tests which show that there is a significant relationship between patient behavior and access distance to the use of ARV treatment in HIV patients at the Ambon City Health Center.

Based on the results of the analysis, the coefficient (B) and Exp (B) / OR (Odds Ratio) values were obtained, where patient action was the variable that had the highest B value (3.539) and OR (34.425) when compared to access distance variable. These results indicate that the patient's actions are the most dominant variable influencing the use of ARV treatment in HIV patients at the Ambon City Health Center. The value of Exp(B) or Odds Ratio for patient action shows that the patient's actions have an effect of 34.425 times the opportunity to utilize ARV treatment services for HIV patients at the Ambon City Health Center compared to the effect of distance to access.

DISCUSSION

Effect of patient knowledge on the use of ARV treatment in HIV patients

Based on the results of a study conducted on 156 respondents about factors influencing the use of ARV treatment services in HIV patients at the Ambon City Health Center, the test results showed that there was no effect between the level of patient knowledge on the use of ARV treatment in HIV patients at the Ambon City Health Center ($p=1.00>0.05$).

Knowledge is the result of a person's learning process of something whether heard or seen. The level of knowledge in the cognitive domain includes knowing, understanding, application, analysis, synthesis, and evaluation.¹⁰

The factors that influence knowledge are divided into two, namely internal and external factors. Internal factors include education, work, and age. Education can influence a person's behavior towards lifestyle, especially in attitude motivation. The higher a person's education, the easier it is to receive information. Work is a way of making a living that is boring, repetitive, and full of challenges. Work is done to support personal and family life. Work is considered a time-consuming activity. While age is the age of an individual that is counted from birth to birthday. The more mature, the level of maturity and strength of a person will be more mature in thinking. External factors include environmental, socio-cultural, and knowledge level criteria. The surrounding environment can influence the development and behavior of individuals and groups. If the environment supports a positive direction, then the individual or group will behave positively, but if the surrounding environment is not conducive, then the individual or group will behave unfavorably. The socio-cultural system that exists in society also influences attitudes in receiving information. While the criteria for the level of knowledge are interpreted with a scale, namely: Good with a percentage of $\geq 76\%$ and; Less Good with percentage $< 76\%$.¹¹

Judging from the internal factors, the majority of patients at the Waihaong Health Center and Karpan Health Center in Ambon City only had high school education (SMA), namely 106 respondents (67.9%), so it is natural that the level of knowledge possessed is still lacking, the facts obtained at In the field, researchers found that most of the respondents still had poor knowledge about HIV/AIDS. Most of the respondents only had basic knowledge about HIV/AIDS, but still did not understand how to prevent, how to transmit, and also how to treat HIV/AIDS.

In the research conducted, the results showed that respondents who used ARV treatment had good knowledge, with a total of 123 (93.2%) respondents, but there were also respondents who had poor knowledge and still used ARV treatment, there were 23 respondents with a percentage of 95.8%. This happened because the respondent was the type of person who was obedient when told by a health worker to carry out ARV therapy regularly, even though they did not know the true benefits of ARV. For them, following the advice of health workers is the best solution in living their lives as HIV sufferers, because they have the view that health workers are people who are trusted as figures who can help improve a person's health status.

In addition, the number of respondents who had good knowledge but were not compliant with ARVs was 9 (6.8%) respondents. This is because they have resigned themselves to their lives as PLHIV, so they believe that routinely using ARV therapy is useless because HIV/AIDS cannot be cured.

The research conducted was not in line with research conducted by Tri Anasari¹² and Yuli Trisnawati in 2018 concerning the Relationship between Family Support and Knowledge and Compliance of Pregnant Women with HIV in Consuming ARVs at Prof. dr. Margono Soekarjo Purwokerto conducted on 35 respondents obtained a p value of 0.005 indicating a significant relationship between knowledge and compliance of pregnant women with HIV in taking ARVs.

According to the national Antiretroviral Treatment (ARV) guidelines, there are several factors that influence HIV/AIDS patients in undergoing ARV therapy, one of which is the knowledge of ODHA. Knowledge of ODHA about ARV is a measure of knowledge of ODHA about HIV/AIDS, both transmission and therapy (Permenkes RI Number 87 of 2014).¹³

Effect of patient actions on the utilization of ARV treatment in HIV patients

Based on the results of a study conducted on 156 respondents about factors influencing the use of ARV treatment services in HIV patients at the Ambon City Health Center, the test results showed that there was an effect between action on the use of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.002<0.05$). Respondents with good behavior 144 (95.4%) have the potential to make more use of ARV treatment services.

The research conducted was in line with research conducted by Endang Puji Astuti,¹⁴ Mara Ipa, Tri Wahono, and Andri Ruliansyah concerning Analysis of Community Behavior on Compliance with Taking Filariasis Medication in Three Villages, Majalaya District, Bandung Regency in 2013 which showed that knowledge, attitudes, and the actions that are the main factors for the behavior have been tested multivariately and obtained a p value of 0.001, which means that there is a significant relationship between people's behavior and adherence to filariasis medication. Even though this study has different dependent variables, this study both discusses medication adherence, so this study can still be used as a comparison for research conducted by researchers.

Practice is a real action from the existence of a response. Attitudes can be manifested in concrete actions if facilities or infrastructure are available. Without facilities, an attitude cannot be realized in real action. Levels in practice, among others: Guided responses (guided responses), is an action that is carried out in accordance with the correct sequence. Someone is able to carry out an action systematically from beginning to end; Mechanism, someone who can do the action in the right order, it will become a habit for him to do the same action; and Adoption, an action that has been well developed or modified is called adoption.¹⁵

The results of the research conducted showed that the respondents who took advantage of ARV treatment on average came from the group with good actions as many as 144 (95.4%) respondents, but there were also respondents who had good actions and did not take advantage of ARV treatment, namely as many as 7 (4, 6%) respondents. Most of the respondents who did not take advantage of ARV treatment and had good practices had taken ARVs every month at the Puskesmas, but in their daily lives they did not take medication regularly so that the therapy they carried out tended to fail.

The effect of distance to access to ARV service points on the utilization of ARV treatment in HIV patients

Based on the results of a study conducted on 156 respondents regarding factors influencing the utilization of ARV treatment services in HIV patients at the Ambon City Health Center, the test results obtained that there was an effect between the distance of access to the service location and the utilization of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.012<0.05$). Access distance to ARV service points is a risk factor for non-adherent ARV respondents.

Based on a preliminary study conducted by researchers on several HIV patients in Ambon District, the majority of HIV sufferers said that unreachable access distance to ARV service points was one of the factors causing patients to be lazy to take ARVs regularly every month to the Puskesmas.

Meanwhile, based on research conducted on 156 respondents, the results showed that the majority of patients who took advantage of ARV treatment turned out to have unreachable access distances from their homes to ARV service points, namely 115 or 96.6%. But there are several factors that support ARV adherence related to unreachable access distances, one of which is the behavior of HIV patients themselves which includes knowledge, attitudes, and actions. HIV patients feel that ARV drug therapy is very important for them, therefore, even though the distance to access to services is relatively unreachable, they still try to take routine ARVs every month. In addition, there is assistance from KPAD officers for HIV sufferers who are abandoned by their families, so that ARV pick-up can be represented by officers and then delivered to the patient's home.

The effect of peer support on the use of ARV treatment in HIV patients

Based on the results of a study conducted on 156 respondents about factors influencing the use of ARV treatment services in HIV patients at the Ambon City Health Center, the test results showed that there was an effect of peer support on the use of ARV treatment in HIV patients at the Ambon City Health Center ($p=0.015<0.05$).

The results showed that most of the respondents received supportive social support from their peers. It can be seen from the results of the study which showed that as many as 129 respondents received peer support. The forms of social support that respondents usually receive are from group activities such as Peer Support Groups (KDS), recitation activities, assurance that there is someone who can help when needed if it is difficult to provide access to health and emotional support for at least one person to be able to share solutions and information. This is in line with what Sarafino (2011)¹⁶ found that social support makes a person feel valued, loved, and feels he is still part of the community, so he does not feel discriminated against and this has a very positive impact on his health.

Peer social support plays an important role in the process of self-acceptance of HIV patients. Individuals who are more active/participate in social support activities are calmer and less reckless in dealing with an HIV-related problem. The existence of a peer support group is indeed very influential on the psychology of PLWHA, considering that there are many positive activities such as health education, sharing activities and others. However, not all respondents joined the KDS, instead optimizing sources of support from those closest to the individual such as relatives, friends and life partners. Some of them who do not join any groups take advantage of the support facilities provided by the HIV case manager to increase their motivation.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study it can be concluded that there is no effect of patient knowledge on the use of ARV treatment in HIV patients at the Ambon City Health Center. Furthermore, there is an influence on patient actions, access distance, and peer and community support on the use of ARV treatment in HIV patients at the Ambon City Health Center. Variable Action and distance of access that have the most influence on the utilization of ARV treatment in HIV patients at the Ambon City Health Center.

Suggestions for this study are that it is hoped that HIV patients who are already ARV adherents can provide support and motivation to fellow PLWHA who are not ARV compliant so that they are also willing and

able to take advantage of routine ARV treatment as well as strong support from peers and the community for the use of ARV treatment in HIV patients, it is hoped that support from the community will continue and be sustainable so that it can increase the willingness and confidence of PLWHA to come for treatment. For the Government, in this case the Health Service, to be able to expand and add PDP services (care, support and treatment) at health facilities such as health centers, clinics and hospitals so that the distance to access PDP services is not far from the reach of the community considering there are only two PDP services at City Health Centers Ambon today.

REFERENCES

1. Rizzana S. Implementasi Kebijakan Penanggulangan HIV/AIDS (Studi Implementasi Peraturan Daerah Nomor 14 Tahun 2008 tentang Penanggulangan HIV/AIDS di Kabupaten Malang). *J Ilmiah Administrasi Publik (JIAP)*. 2017;3(3):162-7.
2. WHO. HIV/AIDS. World Health Organization. 2019.
3. WHO. HIV/AIDS. World Health Organization. 2021.
4. Kemenkes RI. Progam Pengendalian HIV AIDS dan PIMS Fasilitas Kesehatan Tingkat Pertama. In Kementerian Kesehatan RI. 2017.
5. Profil Dinas Kesehatan Kota Ambon Tahun 2022.
6. WHO. Global AIDS Updates. 2016.
7. Karyadi, Teguh H. Keberhasilan Pengobatan Antiretroviral (ARV) Divisi Alergi-Imunologi Klinik, Departemen Ilmu Penyakit Dalam, Fakultas Kedokteran Universitas Indonesia / RS dr. Cipto Mangunkusumo, Jakarta. Jakarta : Universitas Indonesia. 2016;4(1):105.
8. Balqis, Thabrany, Hasbullah, Siregar, Kemal N. Cross-Sector Collaboration Indicators Development of HIV-AIDS Prevention Program in Indonesia. *Indian J Public Health Res Dev*. 2019;10(1):566-71.
9. Handayani L, Ahmad RA, Subronto YW. Faktor risiko loss to follow up terapi ARV pada pasien HIV. *Berita Kedokteran Masyarakat*. 2017;33(4):173.
10. Fitriani S. Promosi Kesehatan. Yogyakarta : Graha Ilmu. 2011.
11. Wawan, dan Dewi M. Teori & Pengukuran Pengetahuan, Sikap, dan Perilaku Manusia. Cetakan II. Yogyakarta : Nuha Medika. 2011.
12. Anasari, Trisnawati TDY. Hubungan Dukungan Keluarga Dan Pengetahuan Dengan Kepatuhan Ibu Hamil Dengan HIV Dalam Mengonsumsi ARV Di RSUD PROF. DR. Margono Soekarjo Purwokerto. *J Publikasi Kebidanan*. 2018;9(1):100-13.
13. Peraturan Menteri Kesehatan Republik Inonesia Nomor 87 Tahun 2014 tentang Pedoman Pengobatan Antiretroviral. 2014.
14. Astuti, Endang P. Analisis Perilaku Masyarakat Terhadap Kepatuhan Minum Obat Di Tiga Desa Kecamatan Majalaya Kabupaten Bandung. *Media Litbangkes*. 2013;24(4):199-208.
15. Notoatmodjo, Soekidjo. Promosi Kesehatan dan Perilaku Kesehatan. Jakarta: Rineka Cipta. 2012.
16. Sarafino. Health Psychology Biopsychosocial Interaction. American Library of Congress Cataloging. 2011.
17. Kementerian Kesehatan RI. Infodatin Pusat Data dan Informasi Kesehatan RI. 2021.

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