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ANALYSIS OF FACTORS AFFECTING ANTIRETROVIRAL ADHERENCE IN HIV/AIDS PATIENTS

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ABSTRACT
Human Immunodeficiency Virus (HIV) remains a major global public health issue, with antiretroviral (ARV) therapy playing a critical role in its management. Adherence to ARV therapy is essential to suppress viral load, prevent drug resistance, and improve the quality of life of people living with HIV/AIDS (PLWHA). However, cases of non-adherence persist. At RSUD A. Wahab Sjahranie, a referral hospital in East Kalimantan, 16% of patients have been found to be non-adherent to their ARV medication. Ensuring adherence is vital to avoid complications and prevent HIV transmission. This study aims to identify and analyze the factors influencing ARV adherence among HIV/AIDS patients at the Anyelir Outpatient Clinic, RSUD A.W. Sjahranie, Samarinda. This study employed a quantitative analytical approach with a cross-sectional design. It involved 106 HIV/AIDS patients who were actively receiving antiretroviral therapy (ART). The independent variables included knowledge, self-efficacy, duration of therapy, side effects, family support, social support, and healthcare staff attitude. Data were collected using a structured questionnaire administered directly to respondents and supported by secondary data from medical records. A total sampling technique was applied, and data were analyzed using chi-square tests and logistic regression at a 95% significance level. A total of 85.8% of respondents were classified as adherent to ARV treatment. Bivariate analysis showed that knowledge ($p = 0.019$), family support ($p = 0.018$), social support ($p = 0.011$), healthcare staff attitude ($p = 0.006$), and self-efficacy ($p = 0.002$) were significantly associated with ARV adherence. Multivariate analysis identified family support (OR = 4.275), healthcare staff attitude (OR = 6.834), and self-efficacy (OR = 20.241) as the most influential factors. Knowledge, side effects, family support, social support, healthcare staff attitude, and self-efficacy are significant determinants of ARV adherence among PLWHA. Among these, self-efficacy emerged as the most dominant factor.

Keywords: adherence; ARV; HIV/AIDS

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INTRODUCTION

Human Immunodeficiency Virus (HIV) remains a global public health concern. According to UNAIDS (2023), approximately 38.4 million people are living with HIV worldwide, with an estimated 6.7 million cases in the Asia-Pacific region. Although antiretroviral therapy (ART) has been proven to reduce HIV-related mortality, the success of treatment largely depends on patient adherence. High levels of adherence are required to suppress viral load, prevent drug resistance, and improve overall quality of life (World Health Organization [WHO], 2023).

In Indonesia, the cumulative number of HIV cases surpassed 526,000 by the end of 2022 (Kementerian Kesehatan RI, 2023). East Kalimantan is among the provinces with high prevalence, with over 7,500 reported cases. The city of Samarinda is a major contributor to this figure. According to data from the Central Statistics Agency (BPS) of East Kalimantan (2025), there were 314 new HIV cases recorded throughout 2024, of which 108 were from Samarinda. At RSUD A. Wahab Sjahranie, the region's referral hospital, 609 HIV patients were undergoing ARV therapy in 2024, but 16 discontinued treatment and 87 were identified as non-adherent. Nationally, adherence to ARV therapy in Indonesia remains below optimal levels. WHO (2023) recommends ≥95% adherence to ensure

therapeutic effectiveness. However, research indicates that ARV adherence in Indonesia ranges from only 40% to 70% (Latif et al., 2014). This suboptimal adherence may lead to viral rebound, drug resistance, and weakened immunity, worsening clinical outcomes and increasing the risk of community-level transmission (Hodgson et al., 2021). Several factors have been associated with adherence, including social stigma, education level, healthcare access, and socioeconomic status (Anggraini & Wijayanti, 2020; WHO, 2023).

Supporting this, a study by Susnanda and Marastuti (2020) found that self-efficacy significantly influences ARV adherence among individuals living with HIV/AIDS ($p = 0.007$). Individuals with higher confidence in their ability to manage treatment were more likely to adhere. These findings highlight the need for targeted interventions to enhance self-efficacy through education, skills training, and self-management support, especially in outpatient settings. This study aims to comprehensively analyze the factors influencing adherence to antiretroviral (ARV) therapy among HIV/AIDS patients, focusing on variables such as knowledge, self-efficacy, duration of therapy, side effects, family support, social support, and healthcare staff attitudes. Conducted at RSUD A. Wahab Sjahranie Samarinda, a major referral hospital in East Kalimantan, the study is expected to provide evidence-based insights for designing effective and contextually relevant interventions to improve HIV/AIDS management and strengthen patients' behavioral commitment to long-term ARV adherence.

METHOD

This study employed a quantitative approach with a cross-sectional design to examine the association between various independent variables—such as knowledge, self-efficacy, family support, side effects, and healthcare provider attitudes—and adherence to antiretroviral (ARV) therapy. The research was conducted at the Anyelir Outpatient Clinic of RSUD A.W. Sjahranie Samarinda, the primary referral hospital in East Kalimantan, which serves a high number of HIV/AIDS patients annually. The study was carried out from April to May 2025 and included 106 respondents selected through total sampling. Eligible participants were HIV/AIDS patients aged 18 years or older, who had been undergoing ARV treatment for at least six months and provided informed consent.

Data collection was conducted using a structured questionnaire that had been validated for both reliability and content. The questionnaire covered several domains, including ARV-related knowledge, perceived self-efficacy, experienced side effects, family and social support, and perceptions of healthcare provider attitudes. To assess medication adherence, the study employed the Morisky Medication Adherence Scale (MMAS-8), a widely tested and commonly used instrument in HIV research due to its established validity and reliability. The validity test results showed that all items had correlation coefficients greater than the r-table value of 0.36, while the reliability test yielded a Cronbach's alpha of 0.924, indicating excellent internal consistency. Data were analyzed using the chi-square test to identify significant associations between variables, followed by multivariate logistic regression to determine the most influential factors affecting ARV adherence. Ethical approval for this study was obtained from the Health Research Ethics Committee of RSUD AWS under approval number 009.2/3444/Dikalit/2025. This study strictly adhered to ethical standards, ensuring the confidentiality and rights of all participants in accordance with established medical research ethics guidelines.

RESULT

Table 1, among the 106 respondents, the majority were adults (98.1%), male (67.9%), and had a low level of education (70.8%). Most respondents were employed (74.5%) and had been undergoing ARV therapy for more than one year (75.5%). The level of knowledge among respondents was generally high (87.7%), and the majority experienced mild side effects (96.2%). Family support and social support were mostly in the high category, at 54.7% and 56.6%, respectively. The attitude of healthcare providers was perceived as positive by most respondents (67.0%), while self-efficacy was nearly equally distributed, with 55.7% in the low category and 44.3% in the high category. Meanwhile,

adherence to ARV treatment was generally good, with 85.8% of respondents categorized as adherent.

Table 1.
Frequency distribution of respondents based on patient characteristics (n=118)

No	Variable	f	%
1	Age		
	Adult	104	98.1
	Elderly	2	1.9
2	Gender		
	Male	72	67.9
	Female	34	32.1
3	Education		
	Low education	75	70.8
	Higher education	31	29.2
4	Employment status		
	Unemployed	27	25.5
	Employed	79	74.5
5	Duration of Therapy		
	< 1 year	26	24.5
	≥ 1 year	80	75.5
6	Knowledge		
	Poor	13	12.3
	Good	93	87.7
7	Side Effects		
	Mild	102	96.2
	Severe	4	3.8
8	Family Support		
	Low	48	45.3
	High	58	54.7
9	Social Support		
	Low	60	56.6
	High	46	43.4
10	Healthcare Staff Attitude		
	Negative	35	33.0
	Positive	71	67.0
11	Self-Efficacy		
	Low	59	55.7
	High	47	44.3
12	ARV Adherence		
	Non-Adherent	15	14.2
	Adherent	91	85.8

Table 2, several variables demonstrated a statistically significant association with ARV adherence. Knowledge was significantly associated ($p = 0.019$), with respondents who had good knowledge being more likely to adhere to treatment. Family support ($p = 0.018$) and social support ($p = 0.011$) also showed significant effects, where individuals with strong support systems exhibited higher adherence rates. The attitude of healthcare staff ($p = 0.006$) and self-efficacy ($p = 0.002$) were also significantly related, indicating that patients who perceived staff attitudes as positive and had high self-efficacy were more likely to adhere. In contrast, variables such as sex, age, education, employment status, duration of therapy, and side effects did not show a statistically significant association with ARV adherence.

Based on the results of the multivariate analysis presented in Table 3, three variables were found to be significantly associated with ARV adherence: self-efficacy, healthcare staff attitude, and family support. Among these, self-efficacy emerged as the most influential factor, with a p-value of 0.008 and an odds ratio (OR) of 20.241 (95% CI: 2.222–184.402), indicating that patients with high self-efficacy were over 20 times more likely to adhere to treatment. The perception of healthcare staff attitude also showed a significant association ($p = 0.005$; OR = 6.834; 95% CI: 1.782–26.205), suggesting that patients who viewed healthcare providers positively had a greater likelihood of adherence. Furthermore, family support was a contributing factor ($p = 0.043$; OR = 4.275; 95% CI: 1.047–

17.447), indicating that individuals with strong family support were more likely to adhere to their ARV regimen.

Table 2.
Association Between Risk Factors and ARV Adherence

Variable	ARV Adherence				Total		P *value*
	Non-Adherent		Adherent				
	f	(%)	f	(%)	f	(%)	
Age							
Adult	12	16.7	60	83.3	72	100	0.377
Elderly	3	8.8	31	91.2	34	100	
Gender							
Male	15	85.6	89	14.4	104	100	1.000
Female	0	0.0	2	100.	2	100	
Education							
Low education	12	16.0	63	84.0	75	100	0.545
Higher education	3	9.7	28	90.3	31	100	
Employment status							
Unemployed	4	14,8	23	85.2	27	100	1.000
Employed	11	13,9	68	86.1	79	100	
Duration of Therapy							
< 1 year	2	7.7	24	92.3	26	100	0.350
≥ 1 year	13	16.3	67	83.8	80	100	
Knowledge							
Poor	5	38,5	8	61,5	13	100	0.019
Good	10	10,8	83	89,2	93	100	
Side Effects							
Mild	13	12.7	89	87,3	102	100	0.095
Severe	2	50.0	2	50.0	4	100	
Family Support							
Low	11	22,9	37	77,1	48	100	0.018
High	4	6.9	54	93,1	58	100	
Social Support							
Low	13	21.7	47	78.3	60	100	0.011
High	2	4.3	44	95.7	46	100	
Healthcare Staff Attitude							
Negative	10	28.6	25	71.4	35	100	0.006
Positive	5	7.0	66	93.0	71	100	
Self-Efficacy							
Low	14	23.7	45	76.3	59	100	0.002
High	1	2.1	46	97.9	47	100	

Table 3.
Final Multivariate Analysis Model of Risk Factors Associated with ARV Adherence

Variable	B	SE	Wald	p-value	OR	95% CI
Self-Efficacy	3.008	1.127	7.119	0.008	20.241	2.222 – 184.402
Healthcare Staff Attitude	1.922	0.686	7.856	0.005	6.834	1.782 – 26.205
Family Support	1.453	0.718	4.099	0.043	4.275	1.047 – 17.447

DISCUSSION

This study found that family support, healthcare workers' attitudes, and self-efficacy were significantly associated with patient adherence to antiretroviral therapy (ART). Among these three factors, self-efficacy emerged as the most dominant. Family support proved to be a key factor in improving ART adherence (p = 0.038; OR = 4.014), where patients who received active involvement from their families were four times more likely to adhere than those without such support. This finding aligns with the perceived support concept of the Health Belief Model, which emphasizes the critical role of family in treatment engagement. Family-based interventions, such as caregiver training, family education, and involvement in clinical

visits, have been shown to significantly improve treatment outcomes (Ayu Suntara et al., 2022; Sulistia & Rahayu, 2023).

In addition, the attitude of healthcare workers was also significantly associated with adherence (p = 0.006; OR = 5.280). Patients who perceived healthcare providers as friendly and supportive were five times more likely to adhere to ART. This emphasizes the importance of empathetic interpersonal relationships between patients and providers. According to Bandura's theory and the Health Belief Model, support perceived from medical staff can improve patients' self-efficacy and motivation (Bandura, 1986; Widyastuti & Priyanto, 2022). Therefore, training in empathetic communication and patient-centered approaches is crucial in strategies to enhance ART adherence.

Self-efficacy showed the strongest association with ART adherence (p = 0.004; OR = 14.311), indicating that patients with high self-efficacy were 14 times more likely to adhere to treatment. These individuals were more capable of overcoming treatment-related barriers such as side effects, stigma, and social pressure. This finding supports Bandura's Social Cognitive Theory, which highlights that belief in one's own ability to manage behavior is a key determinant of health-related behavior change (Bandura, 1986). Recent studies also show that self-efficacy can be enhanced through individual counseling, peer support, and psychosocial therapy, all of which have been shown to improve ART adherence outcomes (Lestari et al., 2023; Banna & Pademme, 2024).

CONCLUSION

This study concludes that demographic factors do not significantly influence adherence to antiretroviral (ARV) therapy among HIV/AIDS patients. Variables such as age, gender, educational level, employment status, and duration of therapy did not show meaningful associations with adherence. In contrast, psychosocial and interpersonal factors—such as self-efficacy, healthcare provider attitudes, family support, social support, and patient knowledge—were found to have a stronger impact. These findings underscore the importance of internal motivation and supportive social environments in shaping adherence behavior, rather than relying solely on sociodemographic characteristics.

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