

Determinants of Adherence to Taking ARV (Anti Retro Viral) Drugs in PLWHA Patients at Simpang Kawat Public Health Center Jambi City in 2024

Andika Aldi Putra¹, Hubaybah², Rumita Ena Sari³
¹²³Universitas Jambi, Jambi, Indonesia

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Corresponding Author:
Author Name*: Andika Aldi
Putra
Email*:
andikaaliduptraa99@gmail.com

Abstract: Adherence to lifelong antiretroviral (ARV) therapy for people living with HIV/AIDS (PLHIV) is crucial to suppress the progression of HIV and prevent transmission to others. Data from the Jambi City Health Office show that out of 335 PLHIV referred to Simpang Kawat Public Health Center, only 222 individuals (66.2%) regularly adhere to ARV treatment. This study aims to identify the determinants of ARV adherence among PLHIV at Simpang Kawat Public Health Center, Jambi City, in 2024. The research was conducted from April to June 2024 with a sample of 63 individuals. Univariate and bivariate data analyses revealed significant relationships between ARV knowledge, family support, side effects, comorbidities, and the length of therapy with ARV adherence. However, age, gender, and education level were not significantly associated. These findings highlight the importance of more targeted education and social support approaches to improve PLHIV adherence. A holistic approach to addressing medication side effects and increasing family involvement will support the long-term success of the therapy.

Keywords : HIV (Human Immunodeficiency Virus), Adherence, ARVs, PLWHA

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INTRODUCTION

Human Immunodeficiency Virus (HIV) is still a public health problem that has caused the death of 40.1 million people worldwide. In 2021, 650 thousand people died from HIV and 1.5 million people contracted HIV. It is estimated that there will be 38.4 million people living with HIV by the end of 2021, 2/3 of whom are in the African region. In 2022, 630,000 people died from HIV and 1.3 million people contracted HIV.² Based on data from the United Nations Programme on HIV and AIDS (UNAIDS) in 2019, Southeast Asia has the second highest number of HIV-infected people in the world after the African continent. (WHO, 2023)

According to the Ministry of Health, 329,581 PLWHA cases were cumulatively identified between 2009 and March 2022, while 137,397 AIDS cases were cumulatively reported during the same period. The 25-49 age group had the highest reported HIV infection rate (70.5%), followed by the 20-24 age

group (15.9%) and the >50 age group (7.2%). Based on data and reporting from 2010 to March 2022, DKI Jakarta (76,103), East Java (71,909), West Java (52,970), Central Java (44,649), and Papua (41,286) are the five provinces with the highest number of HIV cases. The five provinces with the highest number of AIDS cases are DKI Jakarta, Central Java (14,617), East Java (21,815), and Papua (24,873). (Rahmawati DL, 2023).

According to the Jambi Provincial Health Office Profile, in Jambi Province, the number of positive HIV/AIDS cases in 2018 was recorded at 219 cases, increasing to 254 cases in 2019. However, in 2020 there was a decrease to 201 cases, which then increased again in 2021 and 2022 with 222 and 263 cases respectively. The data shows that HIV/AIDS cases in Jambi Province fluctuate from year to year. The distribution of the majority of patients came from the age group of 25-49 years, followed by the age group of 20-24 years and above 50 years, as shown in the following figure.

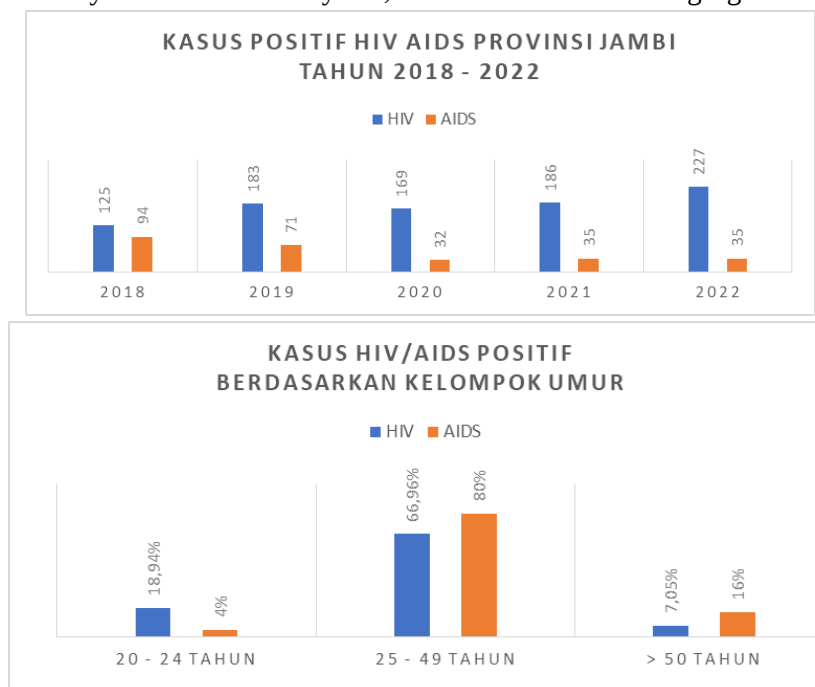


Figure 1.1 HIV/AIDS Positive Cases and Age Groups in Jambi Province 2018-2022

Achieving Triple 95, or 95-95-95 by 2030, is a key goal in HIV prevention and control. This means 95% of people living with HIV know their status, 95% of people on antiretroviral therapy (ART), and 95% of people on ARVs are virally suppressed. However, Indonesia is still far from these targets. Only 51% of PLHIV were still on ARVs in September 2022; of those not on ARVs, 54% defaulted, 6% stopped taking ARVs, and 40% died. In addition, by December 2022, only half (41%) of PLHIV patients receiving ARV treatment had successfully suppressed their virus, and the first 95% milestone was still at 81%. This is a significant drop from the first and second 95% targets, indicating a major problem in Indonesia's HIV response related to treatment retention (Kementerian Kesehatan RI, 2022).

Previous studies have shown that achieving optimal viral suppression of 85% requires adherence to 95% of all ARV doses. Therefore, adherence must be monitored and evaluated regularly, as ARV treatment failure is often caused by lack of adherence to ARVs. (Wulandari EA, 2022). ARV drugs must be taken consistently for life, to prevent the risk of transmitting HIV to others. HIV/AIDS is an infectious disease that is very dangerous, therefore PLWHA who receive treatment must be on time, disciplined and always compliant in taking ARV drugs (Kensanovanto A, 2022). A study conducted by Dorothea et al in the compliance of PLWHA in undergoing ARV treatment in 2020 found that 67 people (59.3%) were not compliant in undergoing treatment (Sianturi SR, 2020).

Patient compliance refers to adherence to treatment guidelines. It is thought that not following treatment instructions will have an unfavourable impact. For example, not taking medication as directed may make the condition worse. (Rahayu S., 2011). Each visit should involve continuous monitoring and evaluation of adherence. Patients not taking ARVs is often the reason why ARV therapy fails. Adherence to ARV therapy at a very high level is required to achieve adequate viral suppression (Kemenkes RI., 2014).

Maintaining treatment with antiretroviral drugs (ARVs) is essential to inhibit the spread of HIV infection. The efficacy of ARV drugs will decrease and the level of viral resistance in the body may even increase if therapy is not followed. Patient characteristics and drug side effects, drug availability, stigma or negative views from the community, knowledge level, motivational factors, family support, the role of health workers, peer support groups, the environment, PLWHA's commitment to treatment, perceptions of PLWHA, access to services, and adherence counselling services in undergoing ARV therapy are some of the factors that have been studied to determine the level of adherence of PLWHA in undergoing ARV therapy (Srikartika VM, Intannia D, 2019).

A study of 312 PLWHA conducted in Milwaukee, Wisconsin by Horvart, Smolenski, and Amico (2014) revealed that information (knowledge) and motivation had an impact on the level of adherence of PLWHA through behavioural skills. In 2019, a study conducted in Nekemte referral hospital, Western Ethiopia, by Abadiga et al. (2020) showed a significant relationship between adherence to ARVs and family support, drug side effects, and understanding of HIV and its treatment (Abadiga M, Hasen T, Mosisa G, 2020).

Anok et al. (2018) found that education was one of the things that helped patients to take their medication as prescribed (Anok MR, Aniroh U, 2018). This is in line with research conducted by Debby et al. (2019) at RSCM Jakarta, which found that 56.1% of respondents who had high insight also had high ARV drug adherence (Debby C, Sianturi SR, 2019). Given that behavioural theory states that a person's behaviour towards something can be understood, it is understandable that patients who have good knowledge will be more compliant in taking medication as prescribed. People who have good knowledge about HIV/AIDS will change their behaviour to control their disease condition and prolong the lives of those affected (Aresta AS, 2019).

According to research by Kartini et al. (2023), there is a significant p value ($0.00 < 0.05$) for the effect of support from the closest person on adherence of PLWHA in Madiun Regency in taking medication (Kartini PR, Wisnubroto AP, 2023). According to research by Kartini et al. (2023), there is a significant p value ($0.00 < 0.05$) for the effect of support from the closest person on adherence of PLWHA in Madiun Regency in taking medication (Hastuti T, 2017). According to research by Proscovia et al. (2020),

adherence to antiretroviral therapy and family support are significantly correlated in Southern Uganda.20 One of the challenges in informant adherence to ARV therapy is family support (Nabunya et al., 2020).

A qualitative study conducted by Mukarromah et al. in 2021 revealed that one of the challenges in informants' adherence to ARV therapy is the side effects of the drugs. (Anok MR, Aniroh U, 2018). Another study conducted at RSUD Dr H. Moch. Ansari Saleh Banjarmasin by Valentina et al. (2019) found a strong relationship between compliance with adverse drug events ($p = 0.002$) and $r = -0.326$, which indicates that the lower the compliance value, the more patients experience adverse drug events (Srikartika VM, Intannia D, 2019). According to a study by Monjok et al. (2010) adverse drug events and antiretroviral treatment adherence in Nigeria were significantly correlated (Monjok E et al., 2010).

According to data from the Jambi City Health Office, the number of PLWHA who have been referred and received ARV treatment services from 20 Public Health Center in Jambi City is mostly at Public Health Center, which is 335 people. The cumulative number of people who routinely undergo ARV treatment at Public Health Center in Jambi City is 222 people who have started treatment. This shows a gap where only 66.2% of PLWHA are on treatment. ARV consumption is carried out for life and should not be missed, therefore it is necessary to pay attention to the compliance of PLWHA in consuming ARVs to prevent resistance. And the best way to prevent the development of resistance is by adherence to ARV therapy carried out by PLWHA. Based on the above problems, the authors feel interested in conducting research with the title of 'Determinants of Adherence to Taking ARV (Anti Retro Viral) Drugs in People with HIV / AIDS (PLWHA) at Simpang Kawat Community Health Centre, Jambi City in 2024'.

METODOLOGI

This study uses a quantitative method with a cross-sectional design, focusing on a single observation of independent and dependent variables within a specific period (Nursalam, 2017). Each subject is observed only once, with measurements taken regarding their status or characteristics at that moment, without any follow-up or further monitoring. The population in this study consists of all people living with HIV/AIDS (PLHIV) referred to and receiving ARV treatment at Simpang Kawat Public Health Center in Jambi City, totaling 335 individuals (Notoatmodjo, 2012). The sampling technique used is non-probability sampling with the accidental sampling method. Accidental sampling is a procedure that selects samples from individuals or units that are most easily encountered or accessible. Samples were taken from PLHIV who were incidentally encountered at the research location or even outside the research location and met the predetermined criteria (Nursalam, 2017). The sample size was calculated using Lameshow's formula (1990) for testing the hypothesis of two proportions difference, resulting in a total sample of 63 respondents. The instrument used was a questionnaire that had been tested for validity and reliability. Data were analyzed using univariate and bivariate methods to describe frequency distributions and test the relationships between variables. This study has obtained ethical approval from the Ethics Committee of Jambi University, Faculty of Medicine and Health Sciences, with the ethics code No. 1400/UN21.8/PT.01.04/2024.

RESULTS AND DISCUSSION

Result

The following demographic data of Simpang Kawat Public Health Center includes data describing the state of the population as in the following table:

Tabel Demographic Data of Population and Population Density of Simpang Kawat Public Health Center Jambi City Year 2024

No	Kelurahan	Total Population	Population Density
1.	Lebak Bandung	10.066 People	0,12/ Km ²
2.	Payo Lebar	8.677 People	0,13/ Km ²
3.	Cempaka Putih	6.580 People	0,09/ Km ²
4.	Talang Jauh	2.786 People	0,03/ Km ²
Public Health Center		28.109 People	8,460/ Km ²

Source: *Simpang Kawat Health Centre Profile 2024*

The population of Simpang Kawat Public Health Center Jambi City was recorded at 28,109 people with an average density of 8,460 / Km². It can be seen that Kelurahan Lebak Bandung has the highest population density of 0.14 / Km² with a population of 10,066 people. While Kelurahan Talang Jauh has the lowest population density of 0.03 / Km² with a population of 2,786 people.

In this study, people living with HIV/AIDS (PLWHA) studied were 63 respondents with characteristics including risk factors, marital status and educational status. The frequency distribution of the characteristics of PLWHA respondents is presented in the following table:

Table Frequency Distribution of People Living with HIV/AIDS (PLWHA) Based on Characteristics at Simpang Kawat Public Health Center

No	Characteristics of PLWHA	Frequency	Percentage(%)
1	Risk Factors		
	Male Sex Offenders (MSM)	32	50.8
	Syringe	13	20.6
	Unprotected Sex	11	17.5
	Infected	7	11.1
2	Education Status		
	SD	1	1.6
	SMP	10	15.9
	SMA	40	63.5
	S1	12	19
3	Marriage Status		
	Unmarried	51	81
	Married	12	19

Source : *Primary data processed, 2024*

Based on table, it can be seen that people with HIV / AIDS who became the most respondents due to risk factors of male sex men (MSM) were 32 people (50.8%), based on educational status shows that the majority of respondents who underwent ARV treatment in this study were high school graduates with a total of 40 people (63.5%), based on marital status shows that respondents who underwent ARV treatment in this study were unmarried respondents as many as 51 people (81%).

Univariate Analysis

The following is a table of frequency distribution of variable determinants of adherence to taking ARV (Anti Retro Viral) drugs in PLWHA patients at Simpang Kawat Public Health Center Jambi City Year 2024

Table Frequency Distribution of Determinant Variables of Adherence to Taking ARV (Anti Retro Viral) Drugs in PLWHA Patients at Simpang Kawat Public Health Center Jambi City in 2024

Variable	Frequency	Persentase (%)
Medication Adherence		
Non-compliant	53	84.1
Compliant	10	15.9
Age		
25 – 55 years	56	88.9
< 25 years - > 55 years	7	11.1
Gender		
Male	51	81
Female	12	19
Education Status		
Low	11	17.5
High	52	82.5
ARV Treatment Knowledge		
Less	39	61.9
Good	24	38.1
Family Support		
Less	31	49,2
Good	32	50,8
Medicine Side Effects		
Yes	50	79.4
No	13	20.6
History of Comorbidities		
Yes	6	9.5
No	57	90.5
Duration of Therapy		
Just started therapy	24	38.1
has been undergoing therapy	39	61.9
Total	63	100

Source : Primary data processed, 2024

Based on the frequency distribution of ARV medication adherence in PLWHA patients at Simpang Kawat Public Health Center Jambi City in 2024 above, it was found that the majority of respondents in this study were classified as non-compliant, as many as 53 people (84.1%), while only 10 people (15.9%) showed compliance. In terms of age, the majority of respondents who were PLWHA were aged 25-55 years, with a total of 56 people (88.9%), while respondents outside the age range (< 25 years or > 55 years) amounted to 7 people (11.1%). In terms of gender, male respondents dominated the group undergoing ARV treatment, namely 51 people (81%), while female respondents amounted to 12 people (19%). Meanwhile, analysis of educational status showed that most respondents had a higher level of education (> SMA), as many as 52 people (82.5%), while respondents with low education (< SMA) numbered 11 people (17.5%).

The frequency distribution of knowledge related to ARV treatment showed that the majority of respondents had a low level of knowledge, as many as 39 people (61.9%), while the other 24 people (38.1%) had a good level of knowledge. In terms of family support, 31 respondents (49.2%) reported a low level of family support, while 32 other respondents (50.8%) reported good support. Furthermore, the frequency distribution related to treatment side effects showed that the majority of respondents felt side effects, with

a total of 50 people (79.4%), while 13 respondents (20.6%) reported no side effects. Furthermore, the frequency distribution regarding the history of comorbidities showed that the majority of respondents, 57 people (90.5%), did not have a history of comorbidities, while 6 people (9.5%) reported a history of comorbidities. Finally, the frequency distribution of the length of ARV therapy showed that the majority of respondents had been on therapy for a long period of time, namely 39 people (61.9%), while 24 other people (38.1%) had just started therapy.

Bivariate Analysis

In this study, bivariate analysis was conducted to determine the relationship between age, gender, educational status, knowledge of ARV treatment, family support, side effects, history of comorbidities and duration of ARV therapy with adherence to taking ARV drugs in people with HIV / AIDS (PLWHA) at Simpang Kawat Public Health Center Jambi City. The statistical test used was chi-square statistical analysis. If the p-value is smaller than ($p < 0.05$), it means that there is a significant relationship between the two variables studied and vice versa. The following are the results of the analysis using bivariate tests.

The following are the results of the test on the relationship between age, gender, educational status, knowledge of ARV treatment, family support, drug side effects, history of comorbidities, and length of therapy with adherence to taking ARV drugs in people with HIV / AIDS (PLWHA) at Simpang Kawat Public Health Center in 2024.

Tabel Results of Relationship Analysis of Determinant Variables of Adherence to Taking ARV (Anti Retro Viral) Drugs in PLWHA Patients at Simpang Kawat Public Health Center Jambi City in 2024

Variable	Medication Adherence				Total		PR	95% Confidence Interval	P-Value
	Not Adherence		Adherence						
	n	%	n	%	n	%			
Age									
25 – 55 Years	49	87.5	7	12.5	56	100	1.531	(0.800 – 2.931)	0.073
< 25 Years - > 55 Years	4	57.1	3	42.9	7	100			
Gender									
Male	44	86.3	7	13.7	51	100	1.150	(0.815 – 1.623)	0.286
Female	9	75	3	25	12	100			
Education Status									
Low	10	90.9	1	9.1	11	100	1.099	(0.878 – 1.376)	0,676
High	43	82.7	9	17.3	52	100			
ARV Treatment Knowledge									
Less	38	97.4	1	2.6	39	100	1.559	(1.139 – 2.134)	0,000
Good	15	62.5	9	37.5	24	100			
Family Support									
Less	31	100	0	0	31	100	1.455	(1.152 – 1.837)	0,001
Good	22	68.8	10	31.3	32	100			
Medicine Side Effect									
Yes	45	90	5	10	50	100	1.463	(0.942 – 2.270)	0,025
No	8	61.5	5	38.5	13	100			
History of Comorbidities									

Yes	3	50	3	50	6	100	0.570	(0.225 – 1.276)	0.046
No	50	87.7	7	12.3	57	100			
Duration of Therapy									
Just started therapy	17	70.8	7	29.2	24	100	0.767	(0.584 – 1.007)	0.034
has been undergoing therapy	36	91.3	3	7.7	39	100			

Source : Primary data processed, 2024

Based on the table, the percentage of respondents in the age range of 25-55 years who were not compliant with taking medication was 49 people (87.5%), while those who were compliant with taking medication were 7 people (12.5%). In the age range below 25 years and above 55 years, the number of respondents who were not compliant with taking medication was 4 people (57.1%), while those who were compliant were 3 people (42.9%). The results of bivariate analysis using the chi-square test showed a p-value of 0.073 ($p > 0.05$), which indicated that there was no significant relationship between age and adherence to taking medication in people living with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center. The Prevalence Ratio (PR) value obtained was 1.531 (95% CI 0.800-2.931).

The table also shows that the percentage of male respondents who were not compliant with taking medication reached 44 people (86.3%), while those who were compliant were 7 people (13.7%). For female respondents, 9 people (75%) were not compliant with taking medication and 3 people (25%) were compliant. The results of bivariate analysis with the chi-square test resulted in a p-value of 0.286 ($p > 0.05$), indicating no significant relationship between gender and adherence to taking medication in PLWHA at Simpang Kawat Public Health Center. The Prevalence Ratio (PR) obtained was 1.150 (95% CI 0.815-1.623).

Based on the table, the percentage of respondents with low education status who were not compliant with taking medication was 10 people (90.9%) and 1 person (9.1%) who were compliant. On the other hand, respondents with higher education who were not compliant with taking medication were 43 people (82.7%), while those who were compliant were 9 people (17.3%). The results of the chi-square test gave a p-value of 0.676 ($p > 0.05$), which means that there is no significant relationship between educational status and adherence to taking medication among PLWHA at Simpang Kawat Public Health Center. The Prevalence Ratio (PR) value obtained was 1.099 (95% CI 0.878-1.376).

Furthermore, the table shows that respondents with poor knowledge about ARV treatment who were not compliant with taking medication were 39 people (97.4%) and only 1 person (2.6%) was compliant. In contrast, respondents with good knowledge who were not compliant with taking medication were 15 people (62.5%), while those who were compliant were 9 people (37.5%). The results of bivariate analysis showed a p-value of 0.000 ($p < 0.05$), which means that there is a significant relationship between knowledge about ARV treatment and adherence to taking medication in PLWHA. The Prevalence Ratio (PR) obtained was 1.559 (95% CI 1.139-2.134), which indicates that PLWHA with low knowledge about ARVs have a 1.559 times greater risk of not adhering to treatment compared to those with good knowledge.

The table further shows that respondents with poor family support were not compliant with taking medication (31 people, 100%), while respondents with good family support were 22 people (68.8%) not compliant and 10 people (31.3%) compliant. The results of bivariate analysis showed a p-value of 0.001 ($p < 0.05$), which indicates a significant relationship between family support and adherence to taking medication in PLWHA. The Prevalence Ratio (PR) of 1.455 (95% CI 1.152-1.837) indicates that PLWHA with poor family support are 1.455 times more likely to be non-compliant with ARV treatment than those with good family support.

In addition, the table shows that 45 respondents (90%) who felt the side effects of drugs were not compliant with taking medication, while only 5 respondents (10%) were compliant. On the other hand,

respondents who did not experience drug side effects, 8 people (61.5%) were not compliant and 5 people (38.5%) were compliant. The results of bivariate analysis showed a p-value of 0.025 ($p < 0.05$), indicating a significant relationship between drug side effects and medication adherence in PLWHA. The Prevalence Ratio (PR) of 1.463 (95% CI 0.942-2.270) indicates a higher risk for respondents who experienced drug side effects.

Furthermore, the table shows that respondents with a history of comorbidities who were not compliant with taking medication were 3 people (50%) and 3 people (50%) who were compliant. Meanwhile, respondents who did not have a history of comorbidities, 50 people (87.7%) were not compliant and 7 people (12.3%) were compliant. The results of the chi-square test showed a p-value of 0.046 ($p < 0.05$), indicating a significant relationship between the history of comorbidities and adherence to taking medication in PLWHA. The Prevalence Ratio (PR) was 0.570 (95% CI 0.225-1.276).

Finally, the table shows that respondents who were new to ARV therapy with non-adherence were 17 people (70.8%) and adherence was 7 people (29.2%). Meanwhile, respondents who had been on ARV therapy for a long time, 36 people (91.3%) were non-compliant and 3 people (7.7%) were compliant. The results of bivariate analysis with the chi-square test gave a p-value of 0.034 ($p < 0.05$), indicating a significant relationship between the duration of ARV therapy and adherence to taking medication in PLWHA. The Prevalence Ratio (PR) of 0.767 (95% CI 0.584-1.007) supports the significant effect of therapy duration on patient compliance.

Discussion

a) Relationship between Age and Adherence to Taking ARV Medication in People Living with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

The results showed that there was no significant relationship between the age of people with HIV/AIDS (PLWHA) and adherence to taking ARV drugs at Simpang Kawat Public Health Center Jambi City, with a p-value = 0.073 ($p > 0.05$). So it can be concluded that there is no statistically significant relationship between age and adherence to taking ARV drugs in people with HIV / AIDS (PLWHA) at Simpang Kawat Public Health Center Jambi City. These results are in line with the research of Ratnawati (2022) at Indramayu Hospital and Mulyawati et al (2020) who also found no significant relationship between age and compliance using the chi-square and Rank Spearman test methods. (Ratnawati D et al., 2022). This study also supports data from the Data and Information Centre of the Indonesian Ministry of Health (2020) and UNAIDS (2021) which states that the majority of PLWHA are in the age range of 25-49 years (Sari YK, Nurmawati T, 2019). However, Kim et al's (2018) study showed different results, finding that 20s and >50 years old were more prone to non-adherence in ARV therapy than 30s, with the reason being that age affects maturity in disease prevention. The older a person is, the more mature he or she will be in disease prevention (Waskito IB, Wardani DWSR, 2023).

The difference in results between this study and the study by Kim et al. (2018) may reflect the complexity of the relationship between age and medication adherence. Although younger age groups are often associated with lower adherence, this may be due to factors such as emotional instability, busyness, and a lack of understanding regarding the importance of ARV therapy. Meanwhile, older individuals, despite having more life experience, may face other health challenges that disrupt adherence, such as medication side effects or comorbid health issues (Waskito IB, Wardani DWSR, 2023)..

b) Relationship between Gender and Adherence to Taking ARV Medication in People with HIV/AIDS (PLWHA) at Simpang Kawat

The results showed no significant relationship between gender and adherence to taking ARV drugs at Simpang Kawat Public Health Center Jambi City, with a p-value of 0.286 ($p > 0.05$). The majority of respondents in this study were male, in line with previous research by Srikartika et al (2019) and Sinaga (2019), as well as data from the Data and Information Centre of the Indonesian Ministry of Health (2020) which shows that HIV prevalence is higher in men (Sinaga VD., 2019). This is associated with risky sexual behaviour that is more often carried out by men. This study is also supported by similar results from Ratnawati (2022), who found no association between gender and ARV adherence at Indramayu Regional Hospital (p-value 0.534). Although the majority of respondents were male, which aligns with data showing a higher prevalence of HIV in this group, these findings indicate that gender may not be the primary determinant of medication adherence. This could be due to the presence of other more dominant factors, such as social support, knowledge about the treatment, or psychological conditions that influence adherence in both males and females (Ratnawati D et al., 2022). This study showed that both men and women had high rates of non-adherence, with 86.3% of men and 75% of women non-adherent to ARV treatment (Waskito IB, Wardani DWSR, 2023). This phenomenon may reflect that other factors, such as emotional instability, workload, or social stigma faced by both genders, play a more significant role in influencing patients' adherence to ARV therapy.

c) Relationship between Educational Status and Adherence to Taking ARV Medication in People with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study shows that there is no significant relationship between educational status and adherence to taking ARV drugs at Simpang Kawat Public Health Center Jambi City, with a p-value of 0.676 ($p > 0.05$). The majority of respondents were highly educated ($>SMA$) but still did not adhere to taking drugs. This result is not in line with the theory that education plays a role in increasing health awareness, as explained by Lawrence Green in Notoadmodjo (2010), that the higher the education, the more aware a person is of maintaining their health. This study is consistent with the results of Debby et al (2019) and Ratnawati (2022) who also found no relationship between education and adherence to taking ARVs. However, this result is different from Lestari et al's study, which found a significant relationship between education level and ARV adherence (p-value 0.02). Although individuals with higher education are generally considered to have better health awareness, many of them still do not adhere to taking antiretroviral (ARV) medication. One contributing factor is the greater work responsibilities, where stress and busyness often lead them to forget or not prioritize time to take their medication. Additionally, a lack of understanding regarding the social stigma associated with HIV/AIDS can hinder their motivation to adhere to therapy, due to fears of judgment from their surroundings. All these factors indicate that adherence to ARV treatment is not only influenced by educational level but also by complex psychological and social aspects.

This discrepancy may be due to the education provided by health workers to all HIV patients before ARV therapy, so formal education level is not always a determinant of adherence. In addition, the lack of comprehensive sexuality education in Indonesia may also be a factor (Muchtar RSU, Natalia S, 2023).

d) Relationship between ARV Treatment Knowledge and Adherence to Taking ARV Medication in People with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study showed that adherence to ARV medication was lower among PLWHA with poor knowledge (97.4%) than those with good knowledge (62.5%). The results of bivariate analysis using chi-square resulted in a p-value of 0.000, indicating a significant relationship between ARV treatment knowledge and adherence, where PLWHA with less knowledge had a 1.559 times greater risk of non-adherence than PLWHA with good knowledge. Lawrence Green's theory states that knowledge is an enabling factor that influences behaviour. Knowledge about treatment plays an important role in adherence, as knowledge-based behaviour tends to be more meaningful. This study is also in line with Fisher's (2006) theory, which states that information about treatment, side effects, and ART regimens greatly influences adherence of HIV patients in taking ARVs (Amico et al., 2006).

This study supports the studies of Muchtar et al (2023) and Waskito et al (2023), which found a significant relationship between knowledge and ARV adherence (Muchtar RSU, Natalia S, 2023)(Waskito IB, Wardani DWSR, 2023). However, this result contradicts a study by Wulandari et al (2021) who did not find a similar relationship. Low levels of knowledge among respondents were shown to influence low ARV treatment adherence, suggesting the importance of comprehensive education as part of HIV control programmes in Indonesia (Wulandari EA, 2022).

e) Relationship between Family Support and Adherence to Taking ARV Medication in People with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study found that the proportion of non-adherence to ARV medication was higher among PLWHA with poor family support (100%) compared to those with good family support (68.8%). The results of chi-square analysis showed a p-value of 0.001 and a prevalence ratio of 1.455, indicating a significant association between family support and adherence. PLWHA with poor family support had a 1.455 times greater risk of being non-adherent in taking medication compared to PLWHA with good family support. Lawrence Green and Fisher's theory supports this finding, which states that family support plays an important role as a reinforcing factor in shaping adherence behaviour. Family support provides the necessary motivation to ensure HIV/AIDS patients adhere to ARV treatment (Notoatmodjo, 2010). Other studies, such as those conducted by Marsela (2020) and Wig, also found a significant relationship between family support and adherence to treatment in PLWHA (Herawati I et al., 2023).

However, this result is not in line with Nurihwani's study, which did not find a significant relationship between family support and ARV adherence. The lack of instrumental and informational support for PLWHA is often caused by the patient's fear of opening up to the family regarding their illness due to social stigma. This lack of support worsens treatment adherence, because the family has an important role as a support system that can help improve the quality of life of HIV/AIDS patients (Nurihwani., 2017).

f) Relationship between Side Effects and Adherence to Taking ARV Drugs in People Living with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study showed that drug non-adherence was higher among PLWHA who experienced side effects (90%) than those who did not experience side effects (61.5%). The results of bivariate analysis with chi-square resulted in a p-value of 0.025, indicating a significant association between ARV treatment side effects and adherence, with a prevalence ratio of 1.463. This means that PLWHA who experience side effects are more likely to be non-adherent than those who do not experience them. According to Green

(2009), side effects are common at the beginning of ARV therapy, such as nausea, dizziness, and insomnia (Notoatmodjo S., 2012). This study also supports the findings of Sitorus et al and Latif et al, which showed that side effects significantly affect adherence. Some side effects such as dizziness, vomiting, and insomnia were very disruptive to PLHIV activities and were the main factors for non-adherence. This study is also in line with Suprihatin (2019), which found major side effects such as dizziness, nausea and allergies affected compliance (Suprihatin W. i, 2019). However, this result is different from Sari's (2021) study, which found no significant relationship between side effects and adherence. Good side effect management, including behavioural and pharmacological changes, as well as effective communication with health workers, are needed to improve adherence to ARV treatment (Suprihatin W. i, 2019).

g) Relationship between History of Comorbidities and Adherence to Taking ARV Drugs in People with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study found a significant association between history of comorbidities and adherence to ARV medication among PLWHA, with a p-value of 0.046 and prevalence ratio of 0.570. About 50% of PLHIV with comorbidities such as tuberculosis, hypertension, and bronchitis were not adherent to taking medication. This suggests that PLHIV with comorbidities have a double burden that interferes with their focus in undergoing ARV treatment, thus reducing the level of adherence. This study is in line with the findings of Najjar in Sitorus (2021) which showed that the presence of comorbidities affects treatment non-adherence (Sitorus RJ et al., 2021). Nuraidah (2020) also found a significant relationship between medication adherence and comorbidities in paediatric patients with HIV (Nuraidah N, 2020). Comorbidities, such as diarrhoea and pneumonia, tend to worsen patients' conditions and reduce their quality of life, thus affecting treatment adherence. The presence of co-morbidities increases the number of drugs that PLWHA must take, complicating treatment and increasing the risk of drug interactions. This can reduce adherence as patients have to manage more drugs and deal with side effects or drug interactions. Comorbidities also add to the cost and motivational burden, which impacts treatment adherence.

h) Relationship between Duration of Therapy and Adherence to Taking ARV Drugs in People with HIV/AIDS (PLWHA) at Simpang Kawat Public Health Center

This study showed a significant association between length of therapy and adherence to ARV medication among PLWHA at Simpang Kawat Public Health Center, with a p-value of 0.034 and a PR value of 0.767. Most respondents in this study had been on therapy for more than 24 months, similar to the findings of Prabowo (2021) in Surakarta and Nurfalah et al (2019) in Lampung, which showed the majority of patients underwent therapy for 13 to more than 36 months (Prabowo SP, 2021). The longer the course of therapy, the more likely patients are to be non-compliant due to the perceived burden of treatment. Along with the length of treatment, the patient's health tends to decline, especially with a decrease in the CD4 count in the body. ARV treatment only suppresses the replication of the virus, not cures it, so patients must take drugs for life. This has an impact on their quality of life, as the longer the treatment, the more susceptible patients are to complications and decreased adherence (Nurfalah F et al., 2019). Saturation is also a major factor in non-compliance, especially after more than 6 months of therapy. Patients often feel bored or healthy and thus neglect treatment. Family and community support is essential to prevent burnout which can lead to emotional stress, destructive coping, and hopelessness. Although this study supports the relationship between length of therapy and adherence, Prabowo (2021) did not find a significant relationship between this factor and patient adherence. The saturation and boredom of PLWHA in taking ARVs is due

to the fact that PLWHA must take the same drugs for life. Therefore, support from family and the surrounding community is needed so that PLWHA do not lose hope.

CONCLUSIONS

There was a significant association between ARV treatment knowledge, family support, side effects, history of comorbidities, and length of therapy of people with HIV/AIDS with their adherence to taking ARV drugs. There was no significant relationship between age, gender, education level with adherence to taking ARV drugs. Based on these results, it is recommended for PLWHA to remain compliant in taking ARV drugs according to the instructions of health workers and care more about themselves in order to achieve optimal recovery. In addition, PLWHA are also encouraged to increase knowledge about HIV/AIDS through counselling, educational activities, and actively seek information related to the disease. PLHIV are also encouraged to disclose their HIV/AIDS status to their partners and family without fear of discrimination or stigma, as support from the closest people is very important in supporting treatment adherence. By maintaining a healthy lifestyle, regular health check-ups, and adherence to treatment, PLWHA can reduce the risk of complications from other comorbidities.

Furthermore, Simpang Kawat Public Health Center is expected to improve services to PLWHA, especially in improving adherence to taking ARV drugs through providing appropriate information, excellent service, providing motivation, and building trusting relationships to instill positive perceptions of the importance of therapy. Health workers need to provide in-depth information about the impact of HIV/AIDS and the risk of non-adherence to ARV therapy, as well as provide support to PLWHA. Family involvement as part of the support system is very important, where they are expected to motivate and become drug monitors (PMOs) to help ensure therapy adherence. In addition, health workers must play a role in monitoring early side effects of ARV therapy and provide counselling on the importance of adherence to achieve treatment effectiveness and minimise long-term side effects.

For future researchers, it is hoped that the results of this study can be used as a reference for the development of further research, and it is hoped that it can add other variables related to adherence to taking medication in PLWHA with better research methods and designs and more samples.

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