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# Factors Associated with Compliance to Treatment Adherence of HIV/AIDS Patients in Kendari City

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### ABSTRACT

**Introduction:** HIV/AIDS remains a serious problem both in Indonesia as a whole and specifically in Southeast Sulawesi. The primary way to address HIV/AIDS is through treatment. Numerous factors make it challenging to predict the causes of compliance and non-compliance among HIV/AIDS patients in seeking treatment. Therefore, research is needed to develop interventions aimed at improving treatment compliance among HIV/AIDS patients. This study aims to analyze factors related to the behavior of treatment compliance among HIV/AIDS patients in the city of Kendari, Southeast Sulawesi Province.

**Method:** This research is a quantitative study with an analytical research design. The method used is a Cross-Sectional Study. The sample size of 88 individuals. Data collection was conducted through a questionnaire technique. Descriptive analysis was performed using frequency distribution tables, while inferential analysis utilized the Chi-square test and/or Fisher's Exact Test.

**Result:** The research findings indicate that only two factors (perception of disease severity and health worker attitudes) are related to treatment compliance, while the other six factors (perceived benefits of treatment, perceived barriers to treatment, family support, health counselor support, drug availability, and health education) show no association and have no detected connection. The most dominance factor is the healthcare worker attitude.

**Conclusion:** The conclusion of this research is that perception of diseases severity and health care worker attitude is the two variabel that have connection with treatment adherence and need improvement to keep the patient and improve their treatment.

### Introduction

HIV/AIDS is a dangerous disease that poses a significant risk of death for those affected.

However, in line with the advancements in scientific knowledge, various measures can now be taken to reduce and mitigate the risk of death due to this disease. The mortality rate due to

HIV/AIDS has decreased by 60% from 2004 to 2019. In 2019, the global death toll from HIV/AIDS reached 1.7 million, significantly dropping from the 2004 figure. This decline is attributed to advancements in medical science, allowing for a variety of interventions to reduce and suppress the mortality risk associated with this disease. In 2019, the global death toll further decreased to 690,000 worldwide.<sup>[1]</sup>

The mortality rates can still be further reduced due to the availability of Antiretroviral Therapy (ARV). ARV treatment is highly effective in slowing down the progression of the virus by eliminating elements necessary for its replication. Additionally, it prevents the HIV virus from destroying the cells that maintain the immune system. Consequently, the condition of HIV/AIDS, once considered a "death sentence" disease, is now widely regarded as a chronic illness by those affected. It is important to emphasize, however, that as of now, there is no cure available, and there is also no vaccine to prevent HIV/AIDS.<sup>[1]</sup>

Indonesia has the fastest spread of HIV/AIDS in Asia. The HIV/AIDS epidemic in Indonesia has been ongoing for more than 20 years, and since the year 2000, the epidemiological phase has transitioned from a low level to a concentrated epidemic stage, with a prevalence of more than 5%. This concentration is observed in high-risk populations, including injecting drug users, female sex workers (WPS), customers of sex workers, men who have sex with men, and transgender individuals.<sup>[2]</sup>

The estimated number of people living with HIV in Indonesia in 2020 was 543,100. Reported cases of HIV-positive individuals have tended to increase each year. However, in 2020, the number of reported HIV-positive cases was the lowest in the past four years, totaling 41,987 cases. This included 29,557 new infections and 30,137 deaths. The decrease in HIV cases in 2020 is suspected to be due to incomplete national HIV case reporting. It was found that 18 districts and cities did not report HIV and/or AIDS data for the year 2020.<sup>[2]</sup>

The total number of HIV cases in Southeast Sulawesi is reported as 543 cases, with 77.7% of them being cases among males. The age group where HIV cases are most commonly found is in the range of 25-49 years, accounting for 324 cases or 59.7%. On the other hand, the smallest number of cases is in the age group of 14 years and below, with 9 cases (1.7%).<sup>[3]</sup>

In Kendari itself, the number of individuals with HIV/AIDS tends to increase each year. The observed increase in cases is quite significant from year to year. In 2019, there were predominantly 57 new cases of HIV/AIDS. The number of new cases surged significantly in 2022, reaching a high of 290 new cases of HIV/AIDS. Up until May 2023, there were 119 new cases reported for the year 2023.<sup>[4]</sup>

Adherence to antiretroviral therapy (ARV) is the key to achieving success in treating HIV infection. This is because consistent use of ARV can suppress the HIV virus to undetectable levels, reduce the risk of drug resistance, improve the quality of life and life expectancy, and enhance overall health while decreasing the risk of HIV transmission.

Research on the treatment adherence of HIV/AIDS patients has been conducted in various locations. However, from the literature review conducted, it is apparent that there is no research report on the treatment adherence of HIV/AIDS patients in Southeast Sulawesi Province in general, and specifically in Kendari (the capital of Southeast Sulawesi Province). In an initial survey conducted on July 21, 2023, at Kendari Regional General Hospital, it was observed that (1) before April 2021, many HIV/AIDS patients were non-compliant with treatment due to the side effects of the medication used; (2) since April 2021, there has been a change in the medication used, and the new medication has no significant side effects, leading to a continuous increase in patient adherence up to the present; (3) at present, only 8 HIV/AIDS patients were found to be non-compliant with treatment. However, as of now, there has been no comprehensive and detailed

study regarding the factors that tend to support or hinder treatment adherence among HIV/AIDS patients.

Based on the realities outlined above, the research with the title "Factors Associated with Treatment Adherence From HIV/AIDS Patients in Kendari City" is important and urgent to conduct.

## Method

This research falls under the category of quantitative research with an analytic research design. The method employed is a Cross-Sectional Study. The population comprises 665 individuals, and the sample was drawn using the binomial proportion formula, resulting in a sample size of 88 individuals. The selection of the research sample locations was determined using purposive sampling, specifically Kendari Regional General Hospital and Lepo-Lepo Community health care. Data collection was performed using a questionnaire. Descriptive analysis utilized frequency distribution tables, while inferential analysis involved the Chi-square test and/or Fisher's Exact Test.

## Result

**Table 1** shows that Chi Square Test result in above shows a Fisher exact value of 0.031. This means that the p-value  $<0.05$ , indicating a relationship between the dependent and independent variables. It can be concluded that there is a relationship between the perception of disease severity and treatment compliance among HIV/AIDS patients in Kendari City. To determine the strength of this relationship, we can look at the Phi value generated in the table above, which is 0.323. Based on this value, it can also be inferred that the relationship between the perception of disease severity and treatment compliance among HIV/AIDS patients in Kendari City falls into the weak category.

**Table 2** observed that after conducting the test, the Fisher exact value obtained is 0.497. This means that the p-value is greater than 0.05. According to

the rule that if the p-value is greater than 0.05, it indicates that there is no relationship between the dependent and independent variables. It can be concluded that there is no relationship between treatment barriers and treatment compliance among HIV/AIDS patients in Kendari City.

**Table 3** shows that after conducting the test, the Fisher exact value is 0.545. This means that the p-value is greater than 0.05. According to the criterion that if the p-value is greater than 0.05, it signifies that there is no relationship between the dependent and independent variables. Therefore, it can be concluded that there is no relationship between family support and treatment compliance among HIV/AIDS patients in Kendari City.

**Table 4** shows that after conducting the test, the Fisher exact value is 1.0. This means that the p-value is greater than 0.05. According to the criterion that if the p-value is greater than 0.05, it signifies that there is no relationship between the dependent and independent variables. Therefore, it can be concluded that there is no relationship between health counselor support and treatment compliance among HIV/AIDS patients in Kendari City.

**Table 5** shows that Chi Square Test result in the table above shows a Fisher Exact value of 0.023. This means that the p-value is less than 0.05. According to the criterion that if the p-value is less than 0.05, it indicates that there is a relationship between the dependent and independent variables. It can be concluded that there is a relationship between the attitude of healthcare workers and treatment compliance among HIV/AIDS patients in Kendari City. To determine the strength of this relationship, we can look at the phi value generated. In the table above, the phi value is 0.703. Based on this value, it can also be concluded that the relationship between the attitude of healthcare workers and treatment compliance among HIV/AIDS patients in Kendari City falls into the strong category.

**Table 6** shows that results of the Binary Logistic Step 0 regression analysis indicate that the variables associated with treatment compliance are

the perception of disease severity with a significance value of  $0.02 < 0.05$  and the attitude of healthcare workers with a significance value of  $0.000 < 0.05$ . From these values, it is also evident that the variables most dominant or strongly associated with treatment compliance are the perception of disease severity and the attitude of healthcare workers.

**Table 7** shows that in step 1, after removing unrelated variables and retaining only the attitude of healthcare workers variable with a significance value of  $0.04 < 0.05$ . In step 2, there are 2

variables: perception of disease severity with a significance value of  $0.059 > 0.05$  and the attitude of healthcare workers variable with a significance value of  $0.030 < 0.05$ . Based on these values, it can be concluded that the most dominant variable in its relationship or the variable most associated with treatment compliance of HIV/AIDS patients is the attitude of healthcare workers.

**Table 1**  
**Relationship between Perception of Disease Severity and Treatment Adherence**

Perception of diseases severity	Treatment Adherence				Sum		Fisher Exact	Phi
	Obedient		Less Obe.		f	%		
	f	%	f	%				
Positif	72	100	0	0	72	81.8	0.031	0.323
Negatif	14	87.6	2	12.5	16	18.2		
Total	86	97.7	2	2.3	88	100		

**Table 2**  
**Relationship between Perception of Treatment Barriers and Treatment Adherence**

Treatment Barriers	Treatmet Adherence				Sum		Fisher Exact	Phi
	Obedient		Less Obd.		f	%		
	f	%	f	%				
Positif	41	100	0	0	41	46.6	0.497	0.142
Negatif	45	95.7	2	4.3	47	53.4		
Total	86	97.7	2	2.3	88	100		

**Table 3**  
**Relationship between Family Support and Treatment Adherence**

Family Support	Treatment Adherence				Total		Fisher Exact	Phi
	Obedient		Less Obd.		f	%		
	f	%	f	%				
Supportive	56	96.6	2	3.4	58	65.9	0.545	-0.110
Less Supportive	30	100	0	0	30	34.1		
Total	86	97.7	2	2.3	88	100		

**Table 4**  
**Relationship between Counselor Support and Treatment Adherence**

Counselor Support	Treatment Adherence				Total		Fisher Exact	Phi
	Obedient		Less Obd.		F	%		
	f	%	f	%				
Supportive	84	97.7	2	2.3	86	97.7	1.0	-0.023
Less Supportive	2	100	0	0	2	2.3		
Total	86	97.7	2	2.3	88	100		

**Table 5**  
**Relationship between attitude of healthcare worker and Treatment Adherence**

Attitude of healthcare worker	Treatment Adherence				Sum		Fisher Exact	Phi
	Obedient		Less Obd.		f	%		
	f	%	f	%				
Positif	86	98.9	1	1.1	87	98.9	0.023	0.703
Negatif	0	100	1	100	1	1.1		
Total	86	97.7	2	2.3	88	100		

**Table 6**  
**The Factor Most Associated with Treatment Adherence**  
**Based on Step 0 Logistic Regression Analysis**

Step 0	Variabels	Score	Df	Sig.
	Perception of Diseases Severity	9.209	1	.002
	Healthcare Worker Attitude	43.494	1	.000
	Perception of Treatment Barriers	1.785	1	.182
	Family Support	1.059	1	.304
	Counselor Support	.048	1	.827
	Overall Statistics	46.371	5	.000

**Table 7**  
**The Factor Most Associated with Treatment Compliance**  
**Based on Step 1 and 2 Logistic Regression Analysis**

	Variabels	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	Healthcare Worker Attitude	-9.545	8.171	1	.004
Step 2	Perception of Diseases Severity	-5.460	3.572	1	.059
	Healthcare Worker Attitude	-6.028	4.709	1	.030

## Discussion

The relationship between the perception of disease severity and treatment adherence. The analysis results show a Fisher's exact test value of 0.031. This means that the p-value is less than 0.05, indicating a relationship between the perception of disease severity and treatment adherence. The analysis also reveals a Phi coefficient of 0.323, suggesting that the degree of association between the perception of disease severity and treatment adherence falls into the category of weak. When correlated with the descriptive analysis results, which indicate that generally (81.8%) HIV/AIDS patients in Kendari City have a positive perception of the severity of their illness, it is important to continually maintain and enhance the positive perception of HIV/AIDS patients in Kendari. This is crucial because a negative perception of disease severity could likely lead to patient dropouts.

The relationship between the perception of treatment benefits and treatment adherence. The analysis results indicate that the chi-square test cannot be conducted because the value of the perception of treatment benefits is constant. Furthermore, when correlated with the descriptive analysis results showing that all respondents (100%) of HIV/AIDS patients in Kendari have a positive perception of the benefits of treatment for their illness, it seems that knowledge and a positive attitude toward the perception of treatment benefits have not been translated into actions or behaviors of treatment adherence.

The relationship between the perception of treatment barriers and treatment adherence. The analysis results show a Fisher's exact test value of 0.497. This means that the p-value is greater than 0.05, indicating no relationship between the perception of treatment barriers and treatment adherence. Examining this in relation to the descriptive analysis results, which show that more respondents (53.4%) have a negative perception of the barriers to treatment they have experienced, aligns with the research about Treatment adherence on Tuberculosis Patients and Associated Factors: A Systematic review, indicates that treatment barriers such as medication side effects and distance have an influence on treatment adherence.<sup>[5]</sup> and is confirmed by health care providers at Kendari General Hospital. The influence of treatment side effects and societal

stigma needs to be addressed seriously. This is consistent with the findings of SuharjuniatiHabibi, which indicate that knowledge, stigma, and treatment effects are related to the adherence of People with HIV and AIDS to antiretroviral therapy (ARV) in Kendari City.<sup>[6]</sup>

The relationship between family support and treatment adherence. The analysis results show a Fisher's exact test value of 0.545. This means that the p-value is greater than 0.05, indicating no relationship between family support and treatment adherence. The research findings on this factor align with the study about Family Support Increases Medication Adherence Among HIV/AIDS Patients, indicating that there is no influence of family support on Adherence to HIV/AIDS Treatment Programs at Dr. H. Moch. Ansari Saleh Regional General Hospital in Banjarmasin.<sup>[7]</sup>

The relationship between health counselor support and treatment adherence. The analysis results show a Fisher's exact test value of 1.0. This means that the p-value is greater than 0.05, indicating no relationship between health counselor support and treatment adherence. When considering its relation to the descriptive analysis results, which indicate that 98.9% of respondents living with HIV/AIDS in Kendari City positively assess health counselor support, it is likely that the support provided by counselors may not strongly emphasize the aspect of treatment adherence, hence potentially lacking a significant relationship with treatment adherence.

The relationship between medication availability and treatment adherence. The analysis results indicate that the chi-square test cannot be performed because the medication availability factor has a constant value. Although the descriptive analysis shows that 100% of respondents living with HIV/AIDS in Kendari City positively assess the availability of medications at Kendari City Regional Hospital (RSUD) and Lepo-Lepo Public Health Center, the study's findings align with Felly PhilipusSenewe's research in 2002, which revealed that medication availability has no statistically significant relationship with treatment adherence.<sup>[8]</sup>

The relationship between health education and treatment adherence.<sup>[9]</sup> The analysis results indicate that the chi-square test cannot be

performed because the health education factor has a constant value.<sup>[10]</sup> Therefore, hypothesis 7 in this study cannot be proven. If we examine its relationship with the descriptive analysis results, which show that 100% of respondents living with HIV/AIDS in Kendari City have a positive assessment of the health education factor, it is highly likely that the respondents' evaluations are limited to the levels of knowledge and attitudes, without reaching the level of action or behavior.

The relationship between the health workers' attitude and treatment adherence. The analysis results show a Fisher exact value of 0.023. This means that the p-value is less than 0.05, indicating a relationship between the health workers' attitude and treatment adherence. The analysis also reveals a Phi value of 0.703, signifying that the degree of relationship between the health workers' attitude and treatment adherence falls into the strong category.

If we examine its relationship with the descriptive analysis results, which show that almost all respondents living with HIV/AIDS in Kendari City have a positive assessment of the health workers attitude, it emphasizes the importance of attention, understanding, and acceptance of HIV/AIDS patients in Kendari City regarding the healthcare services they have experienced and felt over time.

The factor most strongly associated with treatment adherence. From the results of the inferential analysis of factors that have or do not have a relationship with treatment adherence among HIV/AIDS patients in Kendari City, it is also found that the factor most strongly associated with treatment adherence is the health workers' attitude.

## Conclusion

Based on the results of the study on "Factors Related to Treatment Adherence in HIV/AIDS Patients in Kendari City," the following conclusions can be drawn.

There is a relationship between the factors of perception of disease severity and the attitude of health workers with the behavior of treatment adherence in HIV/AIDS patients in Kendari City.

There is no relationship between the factors

of perceived barriers to treatment, family support, and health counselor support with the behavior of treatment adherence in HIV/AIDS patients in Kendari City.

No relationship can be detected between the factors of perceived treatment benefits, drug availability, and health education with the behavior of treatment adherence in HIV/AIDS patients in Kendari City.

The factor most strongly associated with the behavior of treatment adherence in HIV/AIDS patients in Kendari City is the attitude of health workers.

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