Poltekita: Jurnal Ilmu Kesehatan
e-ISSN: 2527-7170 | p-ISSN: 1907-459X
Volume 19 Issue 2, 2025, page 371-380
DOI: 10.33860/jik.v19i2.3714
Website:https://ojs.polkespalupress.id/index.php/JIK
Publisher: Poltekkes Kemenkes Palu

Original Article

Factors Affecting the Adherence of People Living with HIV/AIDS on Antiretroviral Treatment in Tasikmalaya City

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ARTICLE INFO

Article History:
Received: 2024-11-07
Published: 2025-11-30

Keywords:

Obedience, ARV, People living with HIV/AIDS (ODHA)

ABSTRACT

The incidence of HIV/AIDS in Indonesia, including in West Java and Tasikmalaya City, continues to rise. In Tasikmalaya City alone, 345 cases have been recorded. Antiretroviral (ARV) therapy has revolutionized HIV treatment, but optimal adherence—ideally 100%—is essential to prevent drug resistance. However, adherence among people living with HIV/AIDS (PLWHA) in Tasikmalaya remains suboptimal, increasing the risk of treatment failure and resistance. This study employed a cross-sectional correlational design involving 62 PLWHA who actively participated in monthly meetings organized by the AIDS Countermeasures Commission (KPA) in Tasikmalaya. Participants were selected using purposive sampling. Data were collected using a validated questionnaire for treatment adherence and a researcher-developed instrument to assess additional variables. Factors found to influence ARV treatment adherence included age, gender, educational background, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-confidence. Among these, perceived barriers were identified as the most dominant factor affecting adherence (OR = 16.9). Although limited by a small sample size, this study highlights several psychosocial and demographic factors that influence ARV adherence among PLWHA. Addressing perceived barriers should be a priority in interventions aimed at improving adherence and preventing drug resistance.

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INTRODUCTION

There are 35 million people live with Human Immunodeficiency Virus (HIV) in 2015 consist of 16 million female and 3,2 million children under 15 years old. Numbers of the death caused by acquiredimmuneDeficiency Syndrom (AIDS) as many as 1,5 million people consist of 1,3 million adult and 190.000 children under 15 years old. The estimation result of Indonesia in 2012 is 591.823 people with positively HIV and throughout the province.[1]

The use of ARV in the patient with HIV is an attempt to reduce the incidence of HIV transmission, to reduce pain and deaths caused by HIV, and also improve the quality life. Maintain the immune function and suppress the viral replication continuously. The obedience on consuming the ARV is the most important thing in the treatment of People living with HIV/AIDS (PLWHA) and it is one of factors that can accommodate the meaningfully life expectancy of People living with HIV/AIDS (PLWHA).[2]

The bed obedience is the main reason for the failure of patient with HIV in doing the ARV treatment. Therefore, the obedience should be monitored and evaluated regularly and also motivated at the time of visit. Maintaining the obedience of consuming the medicine is not easy, the survey of some researches showed that one third of patient with HIV they do not remember

to drink the medicine in three days.[3]

The adherence of People Living with HIV/AIDS (PLWHA) to antiretroviral treatment (ART) is crucial in ensuring the effectiveness of therapy, preventing disease progression, and reducing the risk of drug resistance. However, in Tasikmalaya City, there is limited understanding of the factors influencing treatment adherence among PLWHA. Challenges such as socioeconomic conditions, stigma, access to healthcare services, and individual psychological factors may contribute to suboptimal adherence. Identifying and addressing these factors is essential to improve health outcomes for PLWHA and strengthen public health initiatives in the region.

This research based on the theory of Health Belief Models (HBM). HBM is one of the most widely used models as a framework for health behavior intervention. There are 4 main dimension of HBM; they are perceived susceptibility, perceived severity, perceived benefits, and perceived barrier.Than coupled with another cuesto action such as motivation, self-confidence, and social and interpersonal factors. [4]

The impact of non-obedience in taking the drugs as stated by Hayers (2009) is the occurrence of drug side effects that can be harm the patient's health, enlarge the cost of hospital treatment and the patient could be drug resistance by the drug given. In HIV case, the non-obedience in taking the drug may cause the suppression of imperfect virus infection continuous, drug resistance and treatment options in the future will be limited. [5]

In the city of Tasikmalaya, the growth of HIV case is very fast, there are 172 People living with HIV/AIDS(PLWHA) (ODHA) who are on ARV treatment, and 95% of them have not been obedient in the treatment. As has been described above that the obedience is really important the successful of using ARV, to improve the obedience of People living with HIV/AIDS(PLWHA) (ODHA) in the treatment of ARV drugs, it must be known the affecting factors in order to find a solution to minimize the influence factor. This is the background of the authors want to examine the "Factors affecting antiretroviral treatment obedience in people with HIV / AIDS".

METHODS

The research design used quantitative with cross sectional study approach, which is to learn the dynamic correlation between risk factors with the impact by approach, observation or collecting all the data at once.[6] The cross sectional research is relatively easy and cheap to be done and it is particularly useful for finding exposers that are closely related to the individual characteristics. [7]

The sample of this research is People living with HIV/AIDS(PLWHA) in Tasikmalaya city, patient with HIV/AIDSwho do the treatment at dr Soekarjo or Jasa Kartini Hospital, recorded in Tasikmalaya Non-Governmental Organization (NGOS), People living with HIV/AIDS(PLWHA) who are doing the treatment of ARV ≥ 6 months and People living with HIV/AIDS(PLWHA)who are coming at the routine activities. Exclusion criteria for PLWHA who cannot read and write. PLWHA who have a history of dropping out of treatment. Validity and reliability tests have been carried out in Tasikmalaya Regency. Sample was totally 62 respondents which taken by purposive sampling. The data collecting by using the instrument of questionnaire to assess obedience and factors affecting the obedience on ARV treatment. The objective criteria for the perceived variable are determined based on questionnaire scores using a Likert scale, where respondents are categorized as having high perceived if their total score is above the mean/median or ≥75% of the maximum score, indicating a strong positive perception of the importance and benefits of ARV treatment, while low perceived is defined when the score is below the mean/median or ≤50% of the maximum score, reflecting weak or negative perceptions; meanwhile, obedience is defined as adherence to ARV treatment with ≥95% of prescribed doses taken and consistent attendance at routine medical check-ups, whereas disobedience refers to taking <95% of prescribed doses or frequently missing routine check-ups.

Variables that will be included in the logistic regression analysis are variables whose bivariate analysis value is $p < 0.25$. The statistical test to explain the relationship between the two variables uses a logistic regression test and the size of the association will be displayed in the form of an adjusted adds ratio with a confidence interval (CI) of 95% and by including all independent

variables and analyzed simultaneously to obtain the best model with a value of $\rho < 0.5$.

RESULTS

At the beginning of the research was held on September 28th there were 32 respondents, and then on September 29th there were 34 respondents. The number of drop out in this research is 20%. Respondents who came were 66 persons with 4 dropped out people, 2 people have been dropped out of the treatment, 1 people has not do the treatment and 1 new people consuming ARV for three months. So the respondents become 6 m 2 people. One reason why people living with HIV/AIDS (PLWHA) in Tasikmalaya drop out of school is due to stigma and discrimination that negatively affect their mental health and motivation to continue education.

Table 1. Frequency distribution based on the respondents' characteristic

Variables	n	%
Age		
More than 35	45	72.6
Less than 35	17	27.4
Gender		
Female	24	38.7
Male	38	61.3
Educational		
High	31	50.0
Low	31	50.0

Table 2 Frequency Distribution based on independent respondent

Variables	n (62)	(%)
Perceived Susceptibility		
High	55	88.7
Low	7	11.3
Perceived Severity		
High	41	66.1
Low	21	33.9
Perceived Benefits		
High	20	32.3
Low	42	67.7
Perceived Barrier		
High	51	82.3
Low	11	17.7
Self Confidence		
High	20	32.3
Low	42	67.7

On independent variable, the majority of respondents are in groups of high susceptibility perception as 88,7%. The majority of respondents are also in groups of high severity perception as 66,1%. While the variable of respondent's benefit is in group of low benefit of ARV as 67,7%. Then, the variable of respondent's barrier is in the group with high barrier as 82,3%. The next variable is self-confidence of the research respondent is in the group with low self-confidence as 67,7%.

Table 3 Frequency distribution based on dependent respondent

Variables	n (62)	(%)
The obedience on ARV Treatment		
Obedience	35	56.5
disobedience	27	43.5

Table 4 the analysis of Chi-square on the correlation between independent variable and dependent *variable*

Variables	Obedience		Disobedince		P Value	OR	95% CI
	n	%	n	%			
Age							
More than 35 years Less	30	66.6	15	33.4	0.008	4.8	1.42- 16.1
then 35 years	5	29.4	12	70.6		1	
Gender							
Female	18	75	6	25	0.019	3.7	1.2 – 11.4
Male	17	44.7	21	55.3		1	
Educational							
High	22	70.9	9	29.1	0.021	3.38	1.18 – 9.7
Low	13	41.9	18	58.1		1	
Susceptibility							
High	34	61.8	21	38.2	0.017	9.7	1.92- 86.4
Low	1	14.3	6	85.2		1	
Severity							
High	28	68.3	13	31.7	0.009	4.3	1.4 – 13.3
Low	7	33.4	14	66.6		1	
Benefits							
High	16	80	4	20	0.010	4.8	1.38–16.9
Low	19	45.3	23	54.2		1	
Barriers							
High	33	64.7	18	35.3	0.005	8.2	1.6 – 42.4
Low	2	18.18	9	81.81		1	
Confidence							
High	16	80	4	20	0.010	4.8	1.38–16.9
Low	19	45.3	23	54.7		1	

The analysis indicates that all variables are significantly associated with obedience ($p < 0.05$), where being older than 35 years, female, and having higher education levels increase the likelihood of compliance, while psychological perceptions such as susceptibility, severity, benefits, barriers, and self-confidence exert stronger effects; notably, high perceived susceptibility (OR 9.7) and low perceived barriers (OR 8.2) emerge as the most dominant predictors, suggesting that beyond demographic factors, individuals' perceptions of risk, benefits, and personal capability are the primary determinants of obedience.

Table 5 Multivariat analysis between independent variable and dependent variable

Variables	Model 1 OR (95%) CI	Model 2 OR (95%) CI	Model 3 OR (95%) CI
Age			
> 35 years	5.3(0.87-33.01)	4.2(0.74-24.69)	
< 35 years	1	1	
Gender			
Female	4.7(0.79-27.92)	5.9(1.05-34.04)	6.67(1.23-35.91)
Male	1	1	1
Education			
High	16.7(1.93-144.41)	15.8(1.88-132.87)	10.65(1.6-70.84)
Low	1	1	1
Susceptibility			
High	8.7(0.125-605.7)		
Low	1		
Severity			
High	6.7(0.86-52.47)	6.5(0.87-49.9)	6.6(0.96-44.9)
Low	1	1	1

Variables	Model 1 OR (95%) CI	Model 2 OR (95%) CI	Model 3 OR (95%) CI
Benefits			
High	7.9(0.8-52.4)	10.2(1.5-65.5)	8.9(1.6-51.2)
Low	1	1	1
Barriers			
High	16.9(1.2-224.8)	24.8(2.1-299.3)	9.3(2.6-281.1)
Low	1	1	1
Confidence			
High	7.5(0.9-65.2)	7.95(0.9-67.2)	9.2(1.3-66.9)
Low	1	1	1
N	62	62	62
R^2	0.688	0.675	0.643

The multivariate analysis across three models shows that several variables consistently demonstrate strong associations with obedience, even after adjustment. Age above 35 years shows elevated odds of compliance (OR 5.3 in Model 1; OR 4.2 in Model 2), though confidence intervals are wide and include 1, suggesting borderline significance. Gender becomes significant in later models, with females showing higher likelihood of obedience (OR 5.9 in Model 2; OR 6.67 in Model 3, both with CI excluding 1). Education emerges as a robust predictor across all models, with higher education strongly associated with obedience (OR 16.7 in Model 1, OR 15.8 in Model 2, OR 10.65 in Model 3, all significant). Perceived severity and benefits also show consistent positive associations, with benefits particularly strong (OR 10.11 in Model 2, OR 8.89 in Model 3). Perceived barriers stand out as one of the most influential factors, with very high odds ratios across models (OR 16.9, 24.8, and 9.29 respectively), indicating that lower perceived barriers substantially increase obedience. Confidence also shows a stable positive effect, reaching significance in Model 3 (OR 9.2, CI 1.29–66.9). Overall, the findings suggest that demographic factors (gender, education) and psychological perceptions (benefits, barriers, confidence) are the most consistent and significant determinants of obedience, with Model fit (R^2 between 0.643–0.688) indicating good explanatory power.

DISCUSSION

This research generally purposed to know the factors affecting the treatment of ARV on People living with HIV/AIDS (PLWHA) in Tasikmalaya city. Based on the theory of Health Belief Model of the factors that affect the treatment of ARV is there is a are perceived susceptibility, perceived severity, perceived benefits, and perceived barrier.Than coupled with another cuesto action such as motivation, self-confidence. Based on the univariat test results obtained that most respondent's age is less than 35 as 45 respondents (72.6%). chi squaretest results obtained the value of p=0,008 OR=4.8 (95% CI = 1,42-16,15) This explains that the respondents aged less than 35 years has a risk 4.8 times bigger than respondents aged less than 35 years.

The research results in accordance with the Research of Holstad (2006) that someone who live normally can be assumed that the longer life, the more experience, deepening knowledge and wisdom in the decision-making action. This is also in line with the research of Martoni (2012) that the most respondents and those who obey aged of more than 35 years and type of gender male [8,9]

The results of research shows that most respondents type of gender male 61.3%. The bivariat test results showed that most type of respondents' gender is male 61.3% and most are in the category of not obeying as 33,9%. This is in line with the research that a woman which living with HIV/AIDShas the level of obedience is higher than male which living with HIV/AIDS

The research result showed that the gender with the compliance of ARV treatment have a meaningful relationship is seen from the value OR 4.7. This is in accordance with the theory of Glanz in Johnson that women often behaves according to the feeling while men tend to behave or act on the consideration and rational. But men tend to have a lazy attitude work many respondents in the category was not obedient.[8,10]

The results of research about the education of respondents between the high and low

educated. But that low educated more disobedienceas 29%. With the value of p=1,021 OR 3,38is shows that there is significant correlation between education and the obedience in the treatment of ARV. Low-educated respondents have dip reversed 3,38times greater to disobey in ARV treatment than the well-educated.

This is in line with the theory of Michael that education plays in shaping someone's experience and knowledge. Education is also very important in improving someone's obedience [11]. So the higher education of someone,the more obedient in the behavior of treatment.

Theresearch result about the influence of perceived susceptibility to the obedience of ARV treatment on people with HIV/AIDS that respondents have the perceived susceptibility in high categories as 55 respondents (59.2%).The bivariat test results also shows the majority of respondents have the perceived susceptibility is high, in the category of subject as much as 54.8%, category was not obedient as much as 33,9%.

The test result by using the chi squarestatistics obtained the value of p by 0, 017 OR 9.7(1,92-86,43) This is interprated that people living with HIV/AIDS with low susceptibility have 9.7 times greater risk not to obey than high susceptibilitygroup. With the value of the p value is smaller than 0.05 shows that there is the influence of the perception of vulnerability to the compliance of ARV treatment on people with HIV/AIDSin the City of Tasikmalaya.

According to Tarkang and Zotor, (2015) The perception of a person that the relevant personal health problems will contribute to take action needed to prevent health problems. To this must be activities that enhance the perception of the individual vulnerability of a person against the health [12]

There search result using chi square about the influence of the perceived severity on the obediencein ARV treatment of people with HIV/AIDS that the majority of respondents have high severity as 66.2 %. So that the level of obedience in the treatment of ARV has high perceived severity as much as 45.2%. Valueρ USD 0, 009with the majority of respondents are located on the high severity groups have categories obedient in ARV treatment.

The theory of HBM mentions that the perceived severity of the individual will affect individuals' attitude [5.] Consider a serious disease and someone will be willing to do the actions that make the disease is not bad. Whensomeone admitted of someone's severity or certain conditions, not always motivate a person to take the necessary precautions unless one realizes that get the condition will have the implications of the serious physical and social[4].

When people realize the magnitude of the negative consequences of the condition, one can take the necessary action to avoid negative consequences. The more risky a person feels for a disease the better the prevention will be, otherwise if someone feels no risk to a disease then there will be no more precautions taken [13]. In addition, individual actions to conduct treatment and prevention of disease will be encouraged also by the severity of the disease against individuals or society [14]

Based on the results of research on the effect of perceived benefits of the obedience on ARV treatment in people with HIV / AIDS that the results of perceived benefits are in the low category as 67.7%. The result of research using chi square analysis showed that respondents had low perception as much as 67% and most of them were disobedience category as 37,1%. The value of ρ is 0.01. This suggests that there is an effect of perceived benefits of the obedience on ARV treatment in people with HIV / AIDS in Tasikmalaya City. With OR value 4.8.

According to Tarang and Zotor, 2015, Barlet, (2008) perceived benefits is an individual's perception of the benefits he gained from his new behaviors to reduce the risk of developing a condition, especially illness[12,15] . The perceived benefits of an action performed by an individual may make it a motivation to continue to do so. Aspects of antiretroviral therapy benefit perceived impact on antiretroviral treatment adherence [16].

The more benefits a respondent can feel the more obedient they will be on antiretroviral treatment. This can be explained by self-knowledge theory. Self-knowledge is an accurate self-perception of how one thinks, feels, and behaves, and awareness of how that pattern is interpreted by others [17]. According to information from KDS that respondents felt ARV treatment only weakened the HIV virus alone and did not cure so most respondents felt that the benefits of ARVs were few because they could not cure.

Based on the results of research about the effect of perceived barriers to antiretroviral treatment adherence in people with HIV / AIDS that the results of the research of respondents majority are in the high perception group is 82.2% and the obedient category is 53.2%, the value of p value is 0.005 This shows that there is an influence of perceived barrierto the obedience on antiretroviral treatment in people with HIV / AIDS in Tasikmalaya City with high category. Multivariate variablestest results of perceived barrier showed a significant association with ARV treatment adherence with OR 16,9 CI 1.28-224,8.

This is in accordance with existing research, that thehighperceived barrier in PLWHA with high obedience is also associated with received social support [8]. There is a relationship between social support and antiretroviral treatment obedience, the perception of existing constraints can be minimized with this social support [13].

Many respondents on the high perceived barriers but are in this obedient category because of other factors. After seeing the field this is due to the support of the nearest person such as spouse or family. It is most influential because of the support and assistance of peer support groups. Respondents who have barriers in accessing ARVs are assisted by KDS by taking ARVs to hospitals which are then given to people with HIV/AIDS. It is difficult for respondents to get ARVs, so when respondents get ARV they will be obedient in his treatment.

In the Noerliani study also explained that the support of family and closestpeople to be a supporting factor in the antiretroviral treatment, but can also be an inhibiting factor [18]. In accordance with the theory of Tarkang and Zotor 2015 that the magnitude of barrier will affect a person in making decisions. In terms of treatment to be done for life as in the case of respondents of this study.[12]

Based on the results of research on the influence of the perceived self-confidence on antiretroviral treatment obedience in people with HIV / AIDS that the results obtained a low confidence as 67.7%. The study obtained ρ value of 0.01 with OR 4.8 value. This suggests that there is an influence of self-confidence perceptions on obedience to antiretroviral treatment in people with HIV / AIDS in Tasikmalaya City with low category and low self-esteem respondents having 4.8 times more tendency to disobey than high confidence group.

According to Tarkang and Zotor, (2015) Self efficacy is an individual's confidence that he has the confidence and ability to stay healthy behavior change. Self-efficacy is the key of the other five factors because the commitment of individuals is necessary to maintain healthy behaviors that individuals have to go forward.[12]

The level of respondents' self-confidence in determining the success of PLWHA in ARV treatment obedience. Self-confidence is one's belief in the ability to organize and carry out actions that lead to a prospective situation, Self-confidenceplays an important role in motivation in various forms, that is to determine the goals one creates for oneself, the beliefs about what he can do, the power of the business he spend, the time he needs to survive in the face of adversity, and endurance in the face of failure.[19]

This is in line with HBM theory which mentions about self-confidence are one element in HBM that affects individuals in action.[4] The respondents' self-confidence to be obedient in the treatment of ARVs for respondents' life survival.

The result of the research shows the significance correlation between education variable and perceived barrier. With an educational OR score of 16.7 (1,93-144,41) shows that research results and clinical circumstances are appropriate where lowly educated PLHAs tend to be more disobedient in ARV treatment. The value of OR perceptions of obstacles 16.9 (1.28-224,8), people with high perception of barrier tend to be obedient.

Based on the above factors that have a dominant influence on ARV treatment obedience in people with HIV / AIDS in Tasikmalaya City is a constraint factor with an OR value of 16.9 seen from model 3 in multivariate analysis. The limitation of this research is the number of samples because it is too small for quantitative research. caused by difficulties in accessing communication with respondents.

The findings of this study highlight critical factors influencing adherence to antiretroviral therapy (ARV) among People Living with HIV/AIDS (PLWHA) in Tasikmalaya City. Demographic characteristics such as age, gender, and education level significantly impact adherence, with

younger individuals, males, and those with lower education levels exhibiting higher non-adherence rates. Moreover, psychological and perceptual factors such as perceived barriers and self-efficacy play a pivotal role in determining adherence. Among these, perceived barriers emerged as the most dominant factor, indicating that practical challenges, stigma, or lack of support may hinder consistent adherence to treatment. These findings align with the Health Belief Model, which emphasizes the influence of perceived barriers and benefits on health-related behaviors.

The multivariate analysis underscores the multifaceted nature of adherence behavior, showing that both individual and contextual factors must be addressed to improve outcomes. The study revealed that while demographic characteristics explain some variations, psychological perceptions such as the perceived severity of the disease, treatment benefits, and confidence in managing the illness significantly contribute to adherence behavior. These results suggest the need for targeted interventions, such as educational programs and psychosocial support, to address these barriers effectively. Strengthening community-based support systems, involving healthcare providers in ongoing counseling, and reducing stigma through public awareness campaigns could enhance adherence and improve the overall health outcomes of PLWHA in the region. One recent study by Appau et al. (2024) demonstrated that the Health Belief Model effectively predicts HIV testing and counseling uptake among youth, highlighting the importance of perceived susceptibility and self-efficacy in shaping health behaviors. [20 21]

CONCLUSION

The conclusion should answer the objectives of the research and research discoveries. The concluding remark should not contain only the repetition of the results and discussions or abstract. You should also suggest future research and point out those that are underway.

This study concludes that adherence to antiretroviral therapy (ARV) among People Living with HIV/AIDS (PLWHA) in Tasikmalaya City is influenced by demographic and psychological factors. Younger individuals, males, and those with lower education levels are more likely to exhibit non-adherence. Psychological aspects, including perceived barriers, severity, benefits, and self-efficacy, significantly affect adherence, with perceived barriers being the most dominant factor. Multivariate analysis highlights that a combination of these factors contributes to non-adherence, emphasizing the need for targeted interventions such as educational programs, stigma reduction initiatives, and enhanced support systems to improve adherence and health outcomes among PLWHA in the region.

Author's Contribution Statement: Iis Sopiah Suryani : Conceptualization, Methodology, and Data Collection, Ana Ikhsan Data curation, Data Collection, and Writing-Original draft preparation. Lina Marlina: Data analysis, Translating and proofreading article. Hilman Mulyana : Supervisionand Finalization the article, Ai Rahmawati: Validation, and Writing-Reviewing and Editing.

Conflicts of Interest: The biggest presentations of respondents are male of 35 years old. From the eight factors affecting the ARV treatment on people living with HIV/AIDSin Tasikmalaya City, and the most affecting factors is barrier factors.

Source of Funding Statements: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgments: Brief expression of gratitude to individuals, organizations, or institutions that have played a supportive role in the research or publication process but do not meet the criteria for authorship. Includes thanks for financial support, technical guidance, data collection assistance, access to facilities or equipment, mentorship, and other forms of help.

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