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Original Article

Analysis of Factors Related to Medication Compliance in People Living with HIV/AIDS (PLHIV)

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Abstract

Background: This study aimed to examine the relationship between the utilization of health services, support from health workers, and the level of depression with medication adherence among People Living with HIV/AIDS (PLHIV) at Temindung Samarinda Health Center.

Methods: This study is a quantitative descriptive study with a cross-sectional approach, the number of samples in this study was 79 respondents. The instruments used in this study were 3 questionnaires, namely utilization of health services, support from health workers, and for the depression level questionnaire, using the Beck Depression Inventory (BDI II) created by Aron T. Beck. To obtain data related to the variable of medication adherence in PLHIV, secondary data was taken from reports at the Temindung Samarinda Health Center. Bivariate analysis using chi square.

Results: Among 79 PLHIV respondents, 53.2% who utilized health services were adherent to medication. Regarding support from health workers, 84.8% of respondents who received support were adherent. In terms of depression levels, 54.4% of respondents with depression remained adherent. Chi-square analysis showed significant relationships between all three variables and medication adherence (p-values: 0.000 for health service utilization and support, 0.033 for depression level).

Conclusion: There is a statistically significant relationship between the utilization of health services, support from health workers, and depression levels with medication adherence among PLHIV. These findings suggest that improving healthcare access, strengthening provider support, and addressing mental health can enhance adherence to antiretroviral therapy and support better health outcomes in this population.

Introduction

HIV (Human Immunodeficiency Virus) is a virus that attacks the human immune system and weakens the body's ability to fight off any disease that comes. When the immune system begins to weaken, it causes health problems.[1] HIV/AIDS is an infectious disease caused by HIV infection that attacks the immune system. The HIV virus is found in body fluids, especially in blood, semen, vaginal fluids and breast milk. This infection will cause sufferers to experience decreased body resistance so that they are very susceptible to infection with various other diseases. The period between being infected with HIV and the onset of symptoms of the disease (incubation period) is 6 months - 10 years. The average is 21 months in children, and 60 months for adults. HIV/AIDS sufferers require treatment with Antiretrovirals (ARVs) to reduce the amount of HIV virus in the body so that it does not enter the AIDS stage and to prevent opportunistic infections and their complications. Patients who receive treatment must be compliant in taking ARV drugs for life, on time and with discipline.[2]

HIV/AIDS can be transmitted through several transmission methods, namely sexual intercourse between the opposite sex (heterosexual), homosexual intercourse, sharing of injection equipment (penasun), blood transfusion, and transmission from mother to child (perinatal).[3] Groups at risk for HIV/AIDS include Heterosexual groups such as WPSL (Female Direct Sex Workers), WPSTL (Female Indirect Sex Workers), homosexual groups such as MSL (Men Who Like Men), and transvestites, as well as the group of Penasun (Injection Drug Users).[4]

In the Southeast Asia region according to WHO (2017), Indonesia ranks first with 630,000 (540,000-740,000) sufferers, followed by Thailand in second place with 440,000 (390,000-510,000) sufferers and in third place is Vietnam with 250,000 (220,000-280,000) sufferers. Meanwhile, in Indonesia itself, the largest number of sufferers infected with the HIV virus was found in East Java in first place, followed by DKI Jakarta and Central Java in third place, while East Kalimantan itself is included in the top 10 HIV sufferers in Indonesia in eighth place.

Medication compliance in HIV/AIDS clients includes accuracy in time, amount, dose, and how individuals consume their personal medication. Non-compliance in the implementation of therapy will reduce the effectiveness of ARV drugs and even increase viral resistance in the body.[5] Compliance is an absolute must have and be done by ARV recipients as a form of behavior to prevent resistance and an effort to maximize the benefits of therapy and reduce treatment failure. Compliance with antiretroviral therapy (ART) is the key to suppressing the development of HIV disease, reducing the risk of drug resistance, improving overall health, quality of life, and survival, and reducing the risk of HIV transmission. A sufferer must be compliant in undergoing ARV therapy to prevent the development of the virus in the body. Non-compliance in taking ARV drugs in sufferers can increase the risk of the virus increasing in the body.[6]

Methods

This study uses a descriptive correlative research design, namely a study that aims to reveal the correlative relationship between independent variables, namely health service utilization factors, health worker support factors, depression level factors and dependent variables, namely medication adherence in PLHIV using the Cross Sectional approach method. The number of samples was 79 people using the total sampling technique.

Participants in this study were selected based on clearly defined inclusion and exclusion criteria to ensure the relevance and integrity of the findings. The inclusion criteria included: (1) PLHIV who were actively receiving Antiretroviral Therapy (ART) at the Temindung Health Center; (2) aged 18 years or older; and (3) willing to participate in the study as indicated by informed consent. The exclusion criteria were: (1) individuals diagnosed with cognitive impairments or mental disorders that could interfere with reliable communication; and (2) individuals who declined to participate.

The instrument used in this study was a questionnaire, where the questionnaire was not tested for validity because there were already test results by previous researchers, namely the questionnaire on health service utilization, health worker support, and for the depression level questionnaire, using the Beck Depression Inventory (BDI II) created by Aron T. Beck. To obtain data related to the medication adherence variable in PLHIV, secondary data was taken from reports at the Temindung Samarinda Health Center. Although primary adherence measures were initially considered, these methods were not feasible in the present study due to limited access to patients' direct reports, and the retrospective nature of the data collection process.

Data collection was carried out first by selecting prospective respondents according to the criteria determined by the researcher. Furthermore, the researcher will explain the research procedure to the respondents and ask for the respondents' approval to be involved in the study.

The data collected will then be managed through the following stages: editing, coding, processing, and cleaning.[7] The data collection was conducted between August and October 2023. During this period, eligible participants were approached and informed about the research objectives, procedures, potential risks, and benefits. Written informed consent was obtained prior to data collection.

The collected data were then analyzed using univariate and bivariate analysis. Univariate analysis is displayed in the form of a frequency distribution table and percentage value. The variables to be analyzed univariately are the utilization of health services, support from health workers, levels of depression, and compliance with taking medication in PLHIV. Bivariate analysis uses chi square with a computerized system, namely looking at the relationship between variables of utilization of health services, support from health workers, levels of depression with compliance with taking medication in PLHIV.

Results

Table 1. Analysis of Health Service Utilization and Medication Compliance in PLHIV

Utilization of Health Services	Compliance Taking Medication				Total	p-value
	Obedient		Not Obedient			
	N	%	N	%	N	
Utilization of health services	42	53.2	0	0	42	0.000
Not taking of health services	0	0	37	46.8	37	
Total	42	53.2	37	46.8	79	

Based on table 1. shows that the bivariate analysis of the utilization of health services with medication adherence in PLHIV found that the most respondents utilized health services and were compliant with taking medication, namely 42 people (53.2%) and those who did not utilize health services and were not compliant with taking medication were 37 people (46.8%). Analysis using Chi-Square obtained a P Value of 0.000 (p <0.05)

indicating that there is a relationship between the utilization of health services and medication adherence in PLHIV.

Table 2. Analysis of the Relationship between Health Worker Support and Medication Compliance in PLHIV

Health Support	Medication Compliance				Total	p-value
	Obedient		Not Obedient			
	N	%	N	%		
Support	67	84.8	4	5.1	71	0.000
Not Support	0	0	8	10.1	8	
Total	67	84.8	12	15.2	79	

Based on table 2. shows that the bivariate analysis of health worker support with medication adherence in PLHIV found that the most respondents received support and were compliant with taking medication, namely 67 people (84.8%) while those who were not compliant were 4 people (5.1%). Furthermore, 8 people (10.1%) did not receive support and were not compliant with taking medication. Analysis using Chi-Square obtained a P Value of 0.000 (p <0.05) indicating that there is a relationship between health worker support and medication adherence in PLHIV.

Table 3. Analysis of the Relationship between Depression Levels and Drug Compliance in PLHIV

Depression Level	Medication Compliance				Total	p-value
	Obedient		Not Obedient			
	N	%	N	%		
Not Depressed	19	24	7	8.9	26	0.033
Depressed	43	54.4	10	12.7	53	
Total	62	78.4	17	21.6	79	

Based on table 3. shows that the bivariate analysis of depression levels with medication adherence in PLHIV found that the most respondents experienced depression and were compliant with medication, namely 43 people (54.4%) while those who were not compliant with medication were 10 people (12.7%). Furthermore, those who did not experience depression but were compliant with medication were 19 people (24%) while those who were not compliant with medication were 7 people (8.9%). Analysis using Chi-Square obtained a P Value of 0.033 (p <0.05) indicating that there is a relationship between depression levels and medication adherence in PLHIV.

Discussion

Based on the results of the study on the utilization of health services with medication adherence in PLHIV, it was found that 42 respondents (53.2%) utilized health services, 42 respondents (53.2%) were compliant with medication, and 37 respondents (46.8%) did not utilize health services and were not compliant with medication. The results of the study using Chi-Square obtained a P Value of 0.000 (p <0.05) indicating that there is a relationship between the utilization of health services and medication adherence in PLHIV. The factors related to PLHIV (People with HIV/AIDS) compliance in undergoing antiretroviral therapy.[8] In this study, the results of the chi square statistical test were obtained with a p value = 0.040 where the p value is less than the α value, which is 0.05. Another study also stated that health services are a factor that influences compliance with antiretroviral consumption.[9] This is also supported by the results of interviews with the holders of sexually transmitted infection programs and NGOs in the Samarinda area, it was found that respondents who were compliant with taking ARV drugs felt the benefits of health services provided by the Health Center through health workers who provided attention, support, encouragement and always reminded them in carrying out the treatment process.

The results of the analysis of the relationship between health worker support and medication adherence in PLHIV were obtained, those who received support from health workers were 71 people (89.8%), who were compliant in taking medication were 67 people (84.8%) and 4 people (5.1%) were not compliant in taking medication, then the p value was obtained 0.000 (<0.05) which means there is a relationship between health worker support and medication adherence in PLHIV. These results are in line with Ubra's research (2012) which was obtained with a p value of 0.003 (<0.05) which means there is a relationship between health worker support and the success of medication adherence.[10] The parameters of drug compliance consist of the success of filling the prescription, the accuracy of the dose (frequency and amount), the accuracy of use, and the accuracy of the time and duration of use.[11]

The results of the analysis of the relationship between the level of depression and drug compliance in PLHIV obtained as many as showed that the bivariate analysis of the level of depression with drug compliance in PLHIV found that the most respondents experienced depression and were compliant with taking medication, namely 43 people (54.4%) while those who were not compliant with taking medication were 10 people (12.7%). Furthermore, those who did not experience depression but were compliant with taking medication were 19 people (24%) while those who were not compliant with taking medication were 7 people (8.9%). Analysis using Chi-Square obtained a P Value of 0.033 (p <0.05) indicating that there was a relationship between the level of depression and drug compliance in PLHIV. The things that can influence compliance in taking medication in each patient are the respondent's attitude (beliefs, behavior and expectations that can ultimately influence the patient's motivation to start and maintain medication-taking behavior), the existence of an interactive relationship and communication between the patient and the doctor, interventions carried out so that medication compliance occurs (for example, officers ask patients to remember the provisions for taking medication).

The findings of this study are in line with global evidence that access to health services and support from healthcare providers are essential for improving ART adherence among PLHIV. A 2023 study by Gao et al. found that structured health service utilization significantly improved treatment continuity and viral suppression outcomes in HIV-positive adults in low- and middle-income countries.[12] Similarly, a randomized trial conducted by Alibhai et al. in Uganda showed that health worker–delivered adherence counseling significantly improved ART uptake and retention.[13] These findings support the current study's observation that PLHIV who accessed health services and received provider support had higher levels of medication adherence. These results reinforce the need for integrating adherence counseling and follow-up into routine HIV care as a public health priority.

Furthermore, this study also identified depression as a factor associated with reduced medication adherence, echoing previous literature. Tsai et al. (2022) reported that depression significantly affects adherence by diminishing motivation, self-efficacy, and patient–provider interaction, which are critical for consistent ART use.[14] In addition, a multicenter cohort study by Wykowski et al. (2022) highlighted that addressing mental health comorbidities through psychosocial interventions can improve ART outcomes among patients with depression.[15] In this context, the current findings emphasize the importance of

mental health screening and integrated support services in HIV care settings. The presence of depressive symptoms, even among those who remained adherent, suggests a complex interplay of resilience, external support, and care continuity that warrants further exploration.

Despite its strengths, this study has several limitations. First, the use of secondary data for adherence measurement may reduce the depth and accuracy of behavioral insight, especially since no standardized adherence scale (e.g., pill count, self-report) was applied. Second, the cross-sectional design limits the ability to infer causality. Third, the study sample was drawn from a single health center in Samarinda, which may limit the generalizability of the findings to other regions or populations. Additionally, since depression and support were assessed through self-reported questionnaires, there is potential for reporting bias or social desirability bias, particularly in stigmatized contexts such as HIV care. Future studies should consider a mixed-methods or longitudinal approach to better capture behavioral dynamics, contextual barriers, and long-term adherence patterns in diverse PLHIV populations.

Conclusion

This study found that the utilization of health services, support from health workers, and levels of depression were significantly associated with medication adherence among People Living with HIV/AIDS (PLHIV). PLHIV who accessed health services and received consistent support from healthcare providers showed markedly higher adherence rates, while those with depressive symptoms were at greater risk of non-adherence. These findings emphasize the multifactorial nature of adherence behavior and the need to address both structural and psychological barriers.

In light of these results, we recommend strengthening health system outreach and integrating adherence-focused counseling as a routine component of HIV care. Furthermore, regular screening and early identification of depressive symptoms should be incorporated into ART programs to prevent lapses in medication adherence. These actionable strategies can support long-term treatment success, improve patient well-being, and reduce the risk of HIV progression and transmission. Future research should explore longitudinal outcomes and the effectiveness of intervention models that combine medical, psychosocial, and behavioral components.

Declaration of Interest

The authors declare that they have no conflict of interest regarding the publication of this article. This research was conducted independently, and no financial or commercial relationships were involved that could be interpreted as a potential conflict of interest.

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