Original Research

Factors Related to Medication Adherence that Influence Quality of Life among People Living with HIV/AIDS in Surakarta

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ABSTRACT

Background: HIV/AIDS is a disease that can cause death and not only affects the physical well-being of an individual but also the overall quality of life, namely psychological, social, and spiritual for someone who is infected. One effort that can be given is to design support and care for PLWHA to improve the quality of life of PLWHA.

Purpose: The purpose of this article is to identify factors related to medication adherence that can affect the quality of life of PLWHA.

Method: This study is an observational study using a cross-sectional approach. A total of 64 respondents filled out a sociodemographic data questionnaire and WHOQOL-HIV BREF to measure quality of life. The relationship between quality of life and the sociodemographic characteristics of respondents was analyzed using the Kruskal-Wallis and Mann-Whitney U tests.

Result: Physical domain of QOL showed a maximum score of 15.41 and social relationship domain showed a minimum score of 14.86 among our study participants. Participants with higher socioeconomic status had shown better scores across all the domains of QOL ($p < 0,005$).

Conclusion: The QOL domain scores are high among males, unmarried, had employment status and had income less than or equal to Rp2.100.000, the distance from the respondent's house to the Health Center was mostly less than or equal to 10 km, did not have a family history of HIV/AIDS, did not have a history of other diseases and therapy treatments other than ARV and mostly experienced side effects.

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INTRODUCTION

Human immunity or immunity is the ability to fight various disease agents such as bacteria, viruses, functions, protozoa and parasites that protect the body so that body functions are not disturbed. This immune system consists of two immune systems, namely natural (non-specific) and specific immunity (Ilyas et al., 2023). The immune system is responsible for protecting the body against attacks by foreign agents that can infect and can harm normal cellular activity. Viral and bacterial infections are one of the attacks of microorganisms that can activate the body's immunity (Ilyas et al., 2022).

HIV (Human Immunodeficiency Virus) is a virus that can cause AIDS (Acquired Immune Deficiency Syndrome). HIV is a virus that weakens the human immune system, resulting in a decrease in a person's immune system. The impact of a decrease in the immune system is that it causes a person to be susceptible to disease (Holifah et al., 2023). HIV/AIDS is of particular concern because its prevalence in Indonesia is still relatively high. Central Java Province is ranked 5th for new HIV cases with a total of 5,425 cases and ranked first for AIDS cases with a total of 1,719 cases in 2017 (Ministry of Health of the Republic of Indonesia, 2018). The high prevalence of HIV/AIDS cases indicates that efforts to prevent and control HIV/AIDS have not been implemented optimally. One of the efforts to overcome HIV/AIDS that can be done is by undergoing treatment.

HIV sufferers require combination antiretroviral (ARV) therapy as a management of the HIV virus, because it has been proven to stop viral replication, change the course of HIV infection, and significantly reduce morbidity and mortality (Jocelyn et al, 2024). The process of treating HIV/AIDS patients using Antiretroviral (ARV) requires good fulfillment so that treatment can obtain optimal results. Compliance in the use of ARVs is the accuracy of patients in taking ARVs both in terms of time, amount, and dosage and how patients take the medicine. Compliance as a health behavior is influenced by internal and external factors. Internal factors include age, gender, and education grade, while external factors include environmental, social, and cultural factors (Debby et al, 2019).

Another impact obtained from the compliance of HIV/AIDS patients in taking ARVs is improving the quality of life globally. These results are supported by Reis's (2020) research which showed that someone who is compliant with ARV therapy will improve their health and can easily continue their daily activities (Reis et al., 2019), (Xiao et al., 2019). HIV/AIDS patients are at risk of having problems including physical, independence, psychological, social, environmental and spiritual problems. HIV/AIDS patients tend to have concerns in their lives because they feel threatened by death and feel that the life they live is difficult (Pratiwi et al, 2022). Compliance in taking ARVs affects the quality of life because it can suppress the amount of viral load so that they can carry out daily activities without interference (Lindayani, 2017). Efforts to reach a good quality of life include being adherence in taking ARVs. Consistent with the findings of previous studies, individuals with HIV who have a higher quality of life tend to show greater adherence to treatment (Primeira et al., 2020). The purpose of this article is to identify factors related to the existence that can affect the quality of life of PLWHA.

METHOD

The study was conducted at the Manahan Health Center, Surakarta, Central Java in July-August 2024 with an observational study type in the form of a cross-sectional

approach. All studies were conducted after obtaining an Ethics Letter issued by the Ethics Committee of the University of 'Aisyiyah University of Surakarta with the number 223/VIII/AUEC/2024. Researchers did not consider race, ethnicity, religion and background of patients so that all were treated fairly.

Data were obtained from questionnaires distributed and filled out by respondents through print-out questionnaire sheets as primary data. The subjects used in this study were 180 HIV/AIDS patients at the Manahan Health Center in Surakarta with a sample drawn using a purposive sampling technique with an estimated number of respondents based on the calculation results of 64 people. The purposive sampling technique was chosen, among other things, because it has several advantages, namely that the samples taken will be in accordance with the research objectives, easy to carry out, and the selected samples are generally people who are easy for researchers to meet or approach. The inclusion criteria in this study include HIV/AIDS patients who are willing to participate. The aspects that will be examined in this study include independent variables and dependent variables. The independent variables in this study are compliance, sociodemographics, side effects, treatment history, and medical history while the dependent variables in this study is quality of life.

In this study, the data collection technique used a research instrument in the form of a questionnaire. The selection of questionnaires can make it easier to obtain objective data from respondents. The questionnaire in this study consisted of 3 parts, namely the patient's willingness/informed consent form, demographic data questionnaire and HIV/AIDS patient quality of life questionnaire using the WHOQOL-HIV BREF questionnaire in Indonesian. The results of the validity test using Spearman on the WHOQOL-HIV BREF questionnaire obtained six domains that were significantly meaningful (p <0,005) with a strong correlation coefficient value (r = 0,60-0,79). The reliability of the questionnaire was assessed using an internal consistency test based on the Cronbach Alpha coefficient and it was found that all questionnaire questions were reliable with the Cronbach Alpha value in the moderate and good categories (0,513-0,798) (Muhammad et al., 2017). The collected data were entered and analyzed using SPSS. The association between QOL domain scores with sociodemographic, clinical characteristics, and cohabitation status of the participants was analyzed using Kruskall-wallis and Mann-Whitney. For P value < 0,05 was considered to be statistically significant.

RESULTS

Of the 64 study participants, 49 (76,6%) were males. Majority of them, 42 (65,6%) were unmarried. The majority of them (59.4%; n=38) had employment status and had income less than or equal to Rp2.100.000 (56,3%; n=36). The distance from the respondent's house to the Manahan Surakarta Health Center was mostly less than or equal to 10 km (53,1%; n=34). The majority of respondents, 41 people (64,1%) did not have a family history of HIV/AIDS. The majority of respondents also did not have a history of other diseases (57,8%; n=37) and therapy treatments other than ARV (54,7%; n=35) The side effects complained of by respondents after undergoing ARV therapy, mostly experienced side effects (51,6%; n=33).

Characteristics	Number (n)	Percentage (%)
Gender		
Male	49	76,6
Female	15	23,4
Marital Status		
Unmarried	42	65,6
Married	13	20,3
Divorced	9	14,1
Employment status		
Not Working	26	40,6
Working	38	59,4
Income		
$\leq$Rp. 2.100.000	36	56,3
>Rp. 2.100.000	28	43,8
Distance home-healthcare		
$\leq$10km	34	53,1
>10km	30	46,9
Family history of HIV/AIDS		
No	41	64,1
Yes	23	35,9
History of another illness		
No	37	57,8
Yes	27	42,2
History of another therapy		
No	35	54,7
Yes	29	45,3
History of Side Effect		
No	31	48,4
Yes	33	51,6

Table 1. Sociodemographic and Clinical Characteristics

The mean (standard deviation) of transformed scores, ranging from 4 to 20 across the six QOL domains, is presented in Table 2. Among the study participants, the physical domain of QOL recorded the highest mean score of 15.41 (1.7), while the social relationship domain had the lowest mean score of 14.86 (1.8).

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QOL Domains	Trnasformed Score Mean	SD
Physical	15,41	1,7
Psychological	15,32	2,3
Level of independence	15,06	1,7
Social relationships Environmental	14,86	1,8
Spirituality	14,86	1,9
	15,22	2,5

Table 2. Transformed Scores of the 6 Domains of QOL

The association between QOL domain scores and participants' sociodemographic characteristics is shown in Table 3. It was observed that participants with higher sociodemographic status had higher scores across all six QOL domains, and this association was statistically significant (P < 0,05).

Characteristics	WHOQOL-HIV BREF Domains					
	Physical mean (SD)	Psychological Mean (SD)	Level of Independence Mean (SD)	Social Relationship Mean (SD)	Environmental Mean (SD)	Spirituality Mean (SD)
Gender						
Male	15.69 (1.6)	15.89 (2.1)	15.49 (1.7)	15.22 (1.7)	15.20 (1.8)	15.67 (2.3)
Female	14.47 (1.8)	13.45 (1.6)	13.67 (0.9)	13.67 (1.8)	13.73 (1.8)	13.73 (2.7)
P Value	0,031	<0,001	0,001	0,002	0,010	0,020
Marital Status						
Unmarried	15.81 (1.7)	15.67 (2.2)	15.45 (1.6)	15.33 (1.7)	15.24 (1.6)	15.60 (2.8)
Married	14.15 (1.9)	14.42 (2.5)	14.15 (1.4)	14.08 (1.6)	13.46 (2.4)	13.69 (1.8)
Divorced	15.33 (1.7)	15.02 (2.1)	14.56 (2.2)	13.78 (1.7)	15.11 (1.6)	15.67 (1.3)
P Value	0,021	0,038	0,023	0,017	0,050	0,016
Employment status						
Not Working	14.50 (1.7)	14.29 (2.0)	14.19 (1.3)	13.85 (1.7)	13.67 (1.3)	18.81 (2.3)
Working	16.03 (1.5)	16.03 (2.2)	15.66 (1.8)	15.55 (1.5)	15.67 (1.8)	16.18 (2.3)
P Value	0,001	0,005	0,002	<0,001	<0,001	<0,001
Income						
≤Rp. 2.100.000	14.47 (1.5)	14.01 (1.8)	14.36 (1.6)	13.97 (1.5)	14.04 (1.9)	14.22 (2.0)
>Rp. 2.100.000	16.61 (1.2)	17.01 (1.7)	15.96 (1.5)	16.00 (1.5)	15.91 (1.4)	16.50 (2.6)
P Value	<0,001	<0,001	<0,001	<0,001	<0,001	<0,001
Distance home-healthcare						
≤10km	14.79 (1.5)	14.34 (1.9)	14.44 (1.5)	13.97 (1.4)	14.03 (1.8)	14.06 (2.4)
>10km	16.10 (1.7)	16.44 (2.2)	15.77 (1.8)	15.87 (1.6)	15.80 (1.6)	16.53 (2.0)
P Value	0,002	<0,001	0,004	<0,001	<0,001	<0,001
Family history of HIV/AIDS						
No	15.88 (1.7)	16.03 (2.3)	15.34 (1.9)	15.24 (1.9)	15.29 (1.9)	15.68 (2.7)
Yes	14.57 (1.4)	14.05 (1.6)	14.57 (1.4)	14.17 (1.2)	14.09 (1.8)	14.39 (1.9)
P Value	0,001	0,001	0,041	0,008	0,017	0,016
History of another illness						
No	15.97 (1.5)	16.46 (2.0)	15.78 (1.8)	15.65 (1.4)	15.73 (1.6)	16.08 (2.1)
Yes	14.63 (1.7)	13.76 (1.6)	14.07 (1.1)	13.78 (1.8)	13.67 (1.6)	14.04 (2.6)
P Value	0,006	<0,001	<0,001	<0,001	<0,001	0,003

History of another therapy						
No	16.00	16.23	15.57	15.66	15.56	16.11
	(1.5)	(2.0)	(1.7)	(1.6)	(1.6)	(2.1)
Yes	14.69	14.22	14.45	14.02	14.02	14.14
	(1.7)	(2.1)	(1.7)	(1.9)	(1.9)	(2.6)
P Value	0,005	0,001	0,009	<0,001	0,001	0,003
History of Side Effect						
No	16.45	16.83	15.94	15.52	15.69	16.52
	(1.3)	(1.8)	(1.7)	(1.8)	(1.9)	(2.4)
Yes	14.42	13.90	14.24	14.24	14.08	14.00
	(1.5)	(1.7)	(1.4)	(1.6)	(1.6)	(2.03)
P Value	<0,001	<0,001	<0,001	0,012	<0,001	<0,001

Table 3. Association between the Quality of Life and Sociodemographic Participans

The results of the statistical test based on table 3 above show that gender has a statistically significant relationship in the psychological domain and level of independence as indicated by p <0,05. Respondents with male gender have higher scores compared to female respondents in all domains. In the variable of marital status, respondents have a statistically significant relationship with the domain of quality of life including physical, psychological, level of independence, and social relationships as indicated by the results of the p <0,05 test. Respondents who are not/not yet married show a higher QOL domain score than respondents who are married and widowed/widowers.

Another result is that respondents who work are proven to have a higher domain score than respondents who do not work. In addition, it can also be concluded statistically that between the variable of employment status and a significant relationship with quality of life in the physical, psychological, level of independence, and environmental domains because P <0,05. The results of the statistical test on the income variable also show that respondents have a significant relationship with the quality of life of patients in the physical, psychological, level of independence and environmental domains because the results show p <0,05. Respondents who have incomes of more than IDR 2,100,000 have higher domain scores than respondents who have incomes of less than IDR 2,100,000. Respondents who have a distance from their home to the Manahan Surakarta health center of more than 10 km have higher scores in the quality of life domain than respondents who have a distance from their home to the health center of less than 10 km. The results of statistical tests also show a significant relationship because p <0.05 in all domains of quality of life.

Respondents who do not have a history of other diseases besides HIV / AIDS and other treatments besides ARVs get higher scores in all domains of quality of life. Respondents who have a history of side effects of ARV use have a statistically significant relationship to quality of life in the physical, psychological, level of independence, and social relationship domains as indicated by the results of p <0,05. Respondents who do not have a history of side effects of ARV use show higher quality of life domain scores than respondents who have a history of side effects.

DISCUSSION

First study to examine the influence of factors related to treatment adherence on the quality of life of HIV/AIDS patients in the Surakarta area Compliance is the ability of individuals to undergo treatment, programmed diets, and change patterns and lifestyles according to the recommendations of health workers (Lyu & Zhang, 2019). Patient-related factors, including self-efficacy, health perceptions, beliefs about medication efficacy, and knowledge of medications; social/economic factors, including social support, family functioning, and costs; therapy-related factors, including side effects and dosage complexity; condition-related factors, including comorbidities; and health care system/health care team-related factors, including support from health care providers, negative interactions with providers, and access to a pharmacy (Mondesir et al., 2019)

The mean QOL domain scores were highest in the physical domain, followed by the psychological, spiritual, level of independence, environment, and social relationship domains, with the social relationship domain showing the lowest scores. Significant differences in QOL scores were observed between genders in the physical, psychological, and level of independence domains, with males exhibiting better QOL scores compared to females. This finding aligns with other studies; however, some studies have not found significant gender differences. Women reported more pain, less energy, and poorer physical and mental health HRQoL (Fumaz et al., 2019). Furthermore, women living with HIV have a lower source of income, engage in less economic activities for their families, and have a greater burden in duties such as cooking and childcare than men (Tegegne, 2023).

Marital status was significantly associated with the physical, psychological, level of independence, and social relationship domains of QOL. Unmarried people living with HIV (PLHIV) exhibited better average QOL scores compared to married or widowed individuals. Similar findings have also been reported in other studies. Not all married PLHIV have a good quality of life, this can be influenced by the lack of family support and high stigma obtained, while PLHIV who are unmarried and do not have a partner or who are divorced still have a good quality of life, because they still get support from family, friends and caregivers so that the main support does not come solely from partners (Jahro et al., 2023) and this could be the reason for the better Quality of Life (QOL) scores in unmarried participants in our study.

Employment was significantly related to all domains. PLHIV who have jobs have better average QOL scores than PLHIV who do not work. Employment can affect the quality of life of People with HIV/AIDS (PLHIV) such as stigma and discrimination, PLHIV can experience stigmatization in the workplace, such as discrimination or unfair treatment because of their condition. This can negatively affect their quality of life (Asrina et al., 2023), Having a job allows an individual to reach a stage where they can meet their daily living needs. Income plays a crucial role in the quality of life, particularly in relation to the health of HIV/AIDS patients (Ernawati et al., 2020). In addition to providing financial support, increased income helps HIV/AIDS patients divert their focus from disease-related challenges, fostering a sense of purpose and productivity (Martawinarti et al., 2020). This income is used to cover daily necessities, healthcare, medical expenses, and other costs that directly influence an individual's health status.

The distance between home and health services shows that most PLHIV have a distance from home to health services of less than or equal to 10 km. The distance to health services is another difficulty felt by participants because they have to come to

health services every week to get ARV drugs, PLHIV feel burdened by the distance between the hospital and home and the lack of transportation (Manalu et al., 2019). According to Konstantina et al, HIV / AIDS patients who have difficulty accessing health services to obtain ARVs have a 3.79 times risk of not being compliant with ARV therapy compared to those who have easy access to health services to obtain ARVs so that it will affect their quality of life (Pasaribu et al., 2019).

The comorbidities of respondents were significantly related to physical, psychological quality of life, level of independence and social relationships. In PLHIV who did not have comorbidities showed a better average QOL score compared to respondents who had comorbidities. These results are in line with previous studies on the comparison of the quality of life of comorbid and non-comorbid people living with HIV/AIDS in secondary health facilities in Nigeria, which found that out 350 patients, 178 (50.86%) HIV/AIDS patients who did not have comorbidities had a better quality of life than HIV/AIDS patients who had comorbidities. This finding is evidenced by the results of a higher distribution of scores in all domains of quality of life compared to respondents who had comorbidities. These results are also supported by statistical tests of acquisition which show a significant relationship between comorbidity and quality of life with $p < 0.05$ (Ahmad et al., 2024). Respondents with comorbidities have lower quality of life scores which can be caused by the burden of severe symptoms due to other diseases (Yoah et al., 2023). The magnitude of the influence of comorbidity on the quality of life of HIV/AIDS patients depends on the severity of the symptoms felt (Banda et al., 2019).

In the other medication history categories used by PLHIV, it was observed that other medication history was significantly correlated with patient quality of life. Polypharmacy was strongly linked to poorer health-related quality of life outcomes among people living with HIV (PLHIV), irrespective of comorbidities. Approximately 2 in 5 PLHIV surveyed reported using multiple medications, and this was significantly associated with worse health-related quality of life outcomes (Okoli et al., 2020).

In the other medication history categories used by PLHIV, it was observed that other medication history was significantly correlated with patient quality of life. Polypharmacy was significantly associated with worse health-related quality of life outcomes among people living with HIV (PLHIV), regardless of comorbidities. Approximately 2 in 5 PLHIV surveyed reported using multiple medications, which was significantly linked to poorer health-related quality of life outcomes. Medication history was also significantly associated with all domains. Many PLHIV expressed concerns about the side effects of antiretroviral therapy (ART). This aligns with previous research, which found that 44.3% of participants experienced side effects from their ARVs, and 41.8% of all participants felt that HIV negatively impacted their lives and quality of life. A specific concern among the overall sample was the potential long-term effects of HIV treatment, reported by 66.6% (Okoli et al., 2020).

CONCLUSION

In conclusion, the QOL domain scores were higher among males, unmarried individuals, those with employment, those earning less than or equal to Rp2,100,000, and those living within 10 km of the Health Center. Participants who did not have a family history of HIV/AIDS, had no history of other diseases or treatments besides ARVs, and

mostly experienced side effects also showed higher scores. We observed that participants with higher sociodemographic status had better scores across all six QOL domains, and this association was found to be statistically significant (P < 0.05).

ACKNOWLEDGEMENT

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