ORIGINAL PAPER

The relationship of belief and quality of life of HIV-infected housewives

Diah Priyantini[1], Daviq Ayatulloh[2], Yuanita Wulandari[3]

[1]Department of Medical Surgical, Critical and Emergency Nursing, Faculty of Health Sciences, University of Muhammadiyah Surabaya, Surabaya, Indonesia
[2]Department of Fundamental and Management in Nursing, Faculty of Health Sciences, Gresik University, Gresik, Indonesia
[3]Department of Maternity and Pediatric Nursing, Faculty of Health Science, University of Muhammadiyah Surabaya, Surabaya, Indonesia

Abstract

Introduction: Housewives with human immunodeficiency virus (HIV) infection may experience decreased quality of life, especially due to transmission of infection through their partners. In order to improve their health management and increase quality of life, confidence is needed. The purpose of this study was to analyze the relationship of belief and quality of life of HIV-infected housewives.

Material and methods: A quantitative cross-sectional study was conducted at the AIDS Commission, Tulungagung Regency, East Java, between August and November 2020. A total of 101 HIV-infected housewives were recruited by total sampling. They were requested to complete a belief and health-related quality of life questionnaire to measure each variable. Data were analyzed using multivariate logistic regression model, with $p < 0.05$ considered statistically significant.

Results: Good quality of life had a significant association with belief indicators (depression management, therapy management, medication adherence, managing symptoms, communication with healthcare providers, and obtaining support). The strongest association was found in those HIV-infected housewives who were able to well-manage feelings of depression and clinical symptoms (PR: 9.12; 95% CI: 0.46-26.68%; $p = 0.001$, and PR: 8.38; 95% CI: 0.68-32.46%; $p = 0.005$, respectively).

Conclusions: The quality of life of housewives with HIV infection is related to their self-confidence, especially management of feelings of depression and clinical symptoms. The results of the study are expected to improve quality of life of HIV-infected housewives, to be more confident and productive.

HIV AIDS Rev 2025; 24, 1: 49-55
DOI: https://doi.org/10.5114/hivar/151787

Key words: belief, HIV, housewives, quality of life.

Introduction

Human immunodeficiency virus (HIV) is an infectious disease that cannot be cured [1], but can be controlled through antiretroviral therapy (ART) [2]. Efforts in overcoming HIV in the last 15 years have shown significant results in reducing the level of mortality [3]. The wide coverage of ART can increase patients lifespan [4] and decrease mortality rate [5]. However, the number of HIV infections is still quite high; in Indonesia, as of March 2021, it was reported that the number of HIV cases was 427,201, and there was

Address for correspondence: Diah Priyantini, Department of Medical Surgical, Critical and Emergency Nursing, Faculty of Health Sciences, University of Muhammadiyah Surabaya, Surabaya, Indonesia, e-mail: diah@fik.um-surabaya.ac.id

Article history:
Received: 06.06.2022
Received in revised form: 13.06.2022
Accepted: 01.07.2022
Available online: 19.03.2025

International Journal of HIV-Related Problems
HIV & AIDS Review

22.78% of those who developed acquired immunodeficiency syndrome (AIDS) [6]. The development of HIV infection into AIDS is influenced by various factors, one of which is patient's psychological condition that affects quality of life [7]. A high number of HIV infections (82.8%) was in productive age [8], and as many as 18,848 were housewives who became infected through transmissions from unfaithful husbands [9].

The number of housewives with HIV infection is still quite high, despite getting infected from their husbands without engaging in risky behaviors [10-12]. A preliminary study conducted among 20 HIV-infected housewives reported that they were very sad to become infected with HIV, even though they did not engage in risky behaviors. Almost all housewives believe that HIV cannot be cured and are very afraid of dying, since HIV mortality rate in Indonesia is still high (14.5%) [13]. Because of that, women are more pessimistic, which reduce their confidence to survive. Also, many housewives are desperate and disorganized in ART therapy or routine visits to health facilities [14, 15]. The worse factor is decreasing confidence and reduction of health condition, which have an impact on patients' quality of life [16]. In several research, quality of life of HIV patients is classified as not good, and 31.25% of patients showed poor quality of life, which can be influenced by deteriorating physical condition, social stigma from society, unfulfilled psychological well-being, and lifelong regrets [15-17]. Many HIV sufferers with initial diagnoses experience depression and attempt suicide [18, 19]. Research show that 39.84% of patients experience depression, 45.68% feel hopeless (no purpose in life), and 29.16% have attempted suicide [20]. Additionally, the lifetime use of ART makes patients feel doomed, and as a result, the rate of lost to follow-up (LFU) of HIV patients in Indonesia is still quite high, with average rate of 21.87% [21, 22].

For housewives with HIV infection, their self-confidence is needed to help in the management and control of their feelings and treatments, managing clinical symptoms, fatigue, and obtaining support [16, 23]. If the woman belief is low, the ability to manage own health is low also. She will lose self-confidence and will constantly think about her health condition, until experiencing symptoms of severe depression [18]. The lower woman's ability to control self-confidence, the poorer quality of life [17], since quality of life of HIV-infected person is a reflection of one's health experience and satisfaction in living life as a HIV survivor [5].

Quality of life of HIV patients has often been researched, because it is an indicator of health status of individuals living with chronic diseases, one of which is HIV [23]. Moreover, quality of life of HIV patients will always be evaluated to reduce mortality rate and increase patient's productivity [16]. A housewife who becomes infected with HIV from her partner experience emotional decline, she feels the impact not because of her own behavior, and feels afraid of transmitting the disease to her children; she is not able to take care of children because of the fear of death, coupled with HIV-related stigma from families and communities [3, 8]. There is a vast magnitude of the impact of HIV infection on housewives; therefore, it is important to evaluate the beliefs and quality of life of housewives infected with HIV/AIDS [15, 16]. The purpose of the current study was to analyze the relationship of belief with quality of life of HIV-infected housewives.

Material and methods

Study design

This was a quantitative analytic study, with cross-sectional approach. It was conducted at the AIDS Commission, Tulungagung, East Java, between August and November 2020, until the sample size was fulfilled.

Participant recruitment

Participants of this study were housewives aged 20-54 years, with HIV infection acquired as a result of contracting it from their partners. Housewives were diagnosed with HIV through clinical examination and three methods, such as OncoProbe, intake, and VIKIA. Other inclusion criteria were women who could read and write, and were cooperative during the research process. Exclusion criteria were patient with mental illness and refusal to participate in the study. Sample size was 101 HIV-infected housewives who were recruited using total sampling method. Before starting the study, all prospective respondents expressed their willingness to participate in the study, and the researcher completely explained the purpose and procedures. All participants provided informed consent voluntarily.

Research instrument

Demographic characteristics of participants were obtained through an instrument consisting of age, religion, ethnicity, occupation, final education level, and income. Confidence of housewives infected with HIV was measured using a modified patient self-confidence questionnaire from Nursalam *et al.* [7], which included 34 questions. Confidence was divided into indicators of managing depression (9 questions), therapy management and medication adherence (7 questions), managing symptoms (5 questions), communication with healthcare providers (4 questions), and receiving support (9 questions). The questionnaire used a 4-point Likert's scale, such as "very sure" = 4, "sure" = 3, "less sure" = 2, and "not sure" = 1 for positive questions, and for negative questions, the opposite was applied. Range of confidence scores was 34-136, with poor interpretation = range, 34-68, moderate = range, 69-102, and good = range, 103-136. Quality of life was measured using a health-related quality of life (HR-QoL) questionnaire [17] with 30 questions, using a 4-point Likert's scale: "never" = 4, "sometimes" = 3, "often" = 2, and "always" = 1, if the question was negative, the assessment was reversed. Total score ranged from 30 and 120, with poor interpretation = range, 30-60, moderate = range, 61-90, and good = range, 91-120. All questions have been previously tested on 40 respondents, and were

declared valid (r-count = 0.317-0.879 > r-table = 0.257) and reliable (Cronbach's $\alpha = 0.896$).

Ethical clearance

The current research received ethical approval from the Research Ethics Committee at the Faculty of Nursing, Universitas Airlangga, Surabaya, with certificate number of 2038-KEPK, issued in 2020. The researchers respected respondents' code of ethics by always maintaining honesty, confidentiality, and preventing adverse events.

Data analysis

Descriptive analysis for characteristics of respondents were presented with a table and narrative, including age, religion, ethnicity, occupation, final education level, income, beliefs, and quality of life. Categorical variables on an ordinal scale were presented in a table of numbers and percentages. Cross-tabulation data about confidence and quality of life were evaluated using chi-square test to identify the association between both variables among HIV-infected housewives. Prevalence ratio (PR) was also used to identify the value of relationship, indicating the level of quality of life, with a 95% confidence interval (CI). Multivariate logistic regression model was employed for statistical analysis to evaluate the most dominant indicator of belief related to quality of life of participants. A value of $p < 0.05$ was considered statistically significant.

Results

In total, 101 housewives infected with HIV participated in the study and responded to questions of the questionnaire. Most housewives were aged between 30 and 49 years (71.3%), with the final education level of elementary school (33.7%). Seventy-eight (77.3%) respondents were Javanese, and majority was Muslims (80.2%). 52.5% of the housewives were private employees, and 37.6% were domestics only. The income of working mothers was 70.3%, still below the minimum regional income (USD = 140.6). The characteristics of the respondents are presented in detail in Table 1.

On average, the confidence of housewives was within sufficient category, indicated by the management of feelings of depression (50.5%), therapy management and drug compliance (45.5%), ability to manage clinical symptoms (50.5%), communication with healthcare providers (37.6%), and obtaining support from others, such as family, closest persons, and community (53.5%). The quality of life was sufficient (44.6%) and good (49.5%), and can be seen in Table 2.

In Table 3, the relationship between belief and quality of life showed to be associated with good ability to manage feelings of depression (25.7%), therapy management and good medication adherence (34.7%), good clinical symptoms' management (38.6%), good communication with healthcare providers (29.7%), and good support from others (32.7%).

Table 1. Characteristics of HIV-infected housewives ($N = 101$)

Factor	*n*	%
Age (years)		
20-29	20	19.8
30-39	39	38.6
40-49	33	32.7
≥ 50	9	8.9
Ethnic group		
Java	78	77.3
Madura	17	16.8
Other	6	5.9
Religion		
Islam	81	80.2
Christianity	20	19.8
Occupation		
Housewife	38	37.6
Private sector employee	53	52.5
Businesswoman	10	9.9
Income		
< Minimum regional income	71	70.3
≥ Minimum regional income	30	29.7
Final education level		
Elementary school	34	33.7
Junior high school	16	15.8
Senior high school	28	27.7
Diploma	23	22.8

Chi-square test demonstrated that there was a significant association between quality of life of HIV-infected housewives and depression management (PR: 2.345; 95% CI: 1.02-4.19%; $p = 0.025$), therapy management and medication adherence (PR: 2.568; 95% CI: 1.42-4.25%; $p = 0.013$), ability to manage clinical symptoms (PR: 2.207; 95% CI: 1.21-3.76%; $p = 0.033$), communication with healthcare providers (PR: 1.908; 95% CI: 1.02-4.63%; $p = 0.044$), and support from others (PR: 2.406; 95% CI: 1.36-4.17%; $p = 0.017$) (Table 3). In binary logistic test (Table 4), the strongest association was shown in HIV-positive housewives who were able to manage feelings of depression and well-manage clinical symptoms (PR: 9.12; 95% CI: 0.46-26.68%; $p = 0.001$, and PR: 8.38; 95% CI: 0.68-32.46%; $p = 0.005$, respectively).

Discussion

The quality of life of housewives with HIV infection was most strongly related to their belief in the management of feelings of depression and managing clinical symptoms. In this study, 49.5% of HIV-positive housewives showed a good quality of life, as evidenced by the belief in the mana-

Table 2. Belief and quality of life of housewives with HIV infection (*N* = 101)

Variable	*n*	Percentage
Belief		
Feelings of depression management		
Poor	2	2.0
Moderate	51	50.5
Good	48	47.5
Therapy and drug adherence		
Poor	1	1.0
Moderate	46	45.5
Good	54	53.5
Managing of clinical symptoms		
Poor	0	0.0
Moderate	51	50.5
Good	50	49.5
Communication with healthcare provider		
Poor	4	4.0
Moderate	38	37.6
Good	59	58.4
Support system		
Poor	3	3.0
Moderate	54	53.5
Good	44	43.6
Quality of life		
Poor	6	5.9
Moderate	45	44.6
Good	50	49.5

gement of depression feelings and management of clinical symptoms, while low quality of life was indicated by a very low score (5.9%). Housewife's quality of life shows a good category, because her belief is also in a good category. Nursalam *et al.* [7] reported that the quality of life of housewives living with HIV was good (93.3%) because of their ability to maintain physical functioning and general health [7]. Similar to Miftahussurur *et al.* [24] who investigated patients with chronic infections, showed housewives' quality of life better because they have more time to carry out routine health check-ups in health facilities including Indonesia. We analyzed several factors associated with the quality of life of chronic hepatitis B patients. Methods: We obtained information from Hepatitis B patients using the WHO Quality of Life questionnaire. Data analysis conducted in this study was a chi-square test and a multivariate logistic regression model was used to calculate the odds ratios (OR). In contrast, Ekstrand *et al.* [25] observed that quality of life of women with HIV infection is not only improved by patients' abilities to maintain their health, but also through social support from their families and reduction of social stigma in communities [25]. Based on several previous studies, it can be seen that improving quality of life of housewives infected with HIV can be through health management with ART and routine control, evaluating symptoms, and obtaining support from the surrounding environment.

Based on the results of the current study, the self-confidence of HIV-infected housewives could be a determinant of patient's quality of life. Moreover, quality of life fits into a category that is in line with majority of patients' beliefs. QoL of housewives can be observed based on the management of housewife's feelings of depression: the more capable to manage, the better psychological condition. In line with a research by Rooney *et al.* [26], the patient's negative mental feelings influence the patient's immune condition, therefore weakens immune system. As a result, the patient's general health deteriorates. HIV patients can fall into depression, which worsen their quality of life. It is also supported by a psycho-neuroimmunology research, in which an individual's adaptive ability in psychological control can stimulate the sympathetic nervous system to strengthen the immunological level [27].

The results also showed that 45.5% of adherence to therapy and medication management contributed to HIV-infected housewives' quality of life, along with the ability to manage clinical symptoms. The main point in the management of HIV patients is to ensure that they adhere to ART and attend routine control visits in health clinics [5]. Many studies have shown that ART is able to extend timespan, prevent transformation of HIV into AIDS, reduce mortality, and increase productivity, thus improve HIV patients' overall quality of life [28-30]. Through regular control, HIV patients meet many other survivors and therapists who provide positive education and support; they can see that many survivors are struggling together [15]. This is in line with a statement that HIV patients who participate in activities and attend social events have a better quality of life compared with those who prefer to be alone and stay away from social activities [31, 32].

Maintaining good quality of life of HIV-infected housewives is not only the responsibility of the patients; the support from healthcare workers plays an important role in the monitoring of their health condition. The results of the study show that housewives who are in contact with healthcare providers can be reminded about regular check-ups and be ART-controlled. Furthermore, healthcare workers play a role of social support for HIV-infected housewives. In line with the study results, the obtained support from other people can make patients become more confident, resulting in better quality of life [31]. The support can come from family, closest persons, friends, and the community [32]. Based on a family empowerment model, the family is the patient's closest caregiver, and patients with HIV feel meaningful when family members provide support [33, 34]. In addition to the support from family, friends and closest people provide also the main support for patients, as they can become listeners, reinforcers, and entertainers for HIV patients [7]. Moreover, there is a role of peer groups and HIV survivors who strengthen each other in the community during regular meetings. Through these supports, housewives with HIV

Table 3. Relationship between belief variables and quality of life of HIV-infected housewives (*N* = 101)

Belief variable	Good QoL (%), *n* = 50	Moderate QoL (%), *n* = 45	Poor QoL (%), *n* = 6	PR	*p*-value	95% CI
Feelings of depression management						
Poor	0 (0.0)	0 (0.0)	2 (2.0)	2.345	0.025	1.02-4.19%
Moderate	24 (23.8)	23 (22.8)	4 (4.0)			
Good	26 (25.7)	22 (21.8)	0 (0.0)			
Therapy and drug adherence						
Poor	0 (0.0)	0 (0.0)	1 (1.0)	2.568	0.013	1.42-4.25%
Moderate	15 (14.6)	25 (24.8)	6 (6.0)			
Good	35 (34.7)	19 (18.8)	0 (0.0)			
Managing clinical symptoms						
Poor	0 (0.0)	0 (0.0)	0 (0.0)	2.207	0.033	1.21-3.76%
Moderate	11 (10.9)	30 (29.7)	6 (6.0)			
Good	39 (38.6)	15 (14.6)	0 (0.0)			
Communication with healthcare provider						
Poor	0 (0.0)	0 (0.0)	4 (4.0)	1.983	0.044	1.02-4.63%
Moderate	20 (19.8)	16 (15.8)	2 (2.0)			
Good	30 (29.7)	29 (28.7)	0 (0.0)			
Support system						
Poor	0 (0.0)	0 (0.0)	3 (3.0)	2.406	0.017	1.36-4.17%
Moderate	17 (16.8)	34 (33.7)	3 (3.0)			
Good	33 (32.7)	11 (10.9)	0 (0.0)			

Table 4. Multivariate regression analysis of belief with good quality of life

Belief variable	PR	*p*-value	95% CI
Good management of feelings of depression	9.12	0.001	0.46-26.68%
Good therapy and drug adherence	7.55	0.009	1.57-43.12%
Good managing of clinical symptoms	8.38	0.005	0.68-32.46%
Good communication with healthcare provider	5.43	0.023	1.13-69.04%
Good support system	6.87	0.012	1.46-29.17%

can improve their QoL [35, 36]but subgroup analysis showed a suggestive effect of the peer intervention in reducing gaps in care among stably housed subjects. Fully compliant subjects in the peer intervention experienced significantly fewer 4-month gaps in HIV primary care ($p < 0.0001$).

During the study, the authors found several obstacles. While most of the patients' quality of life was indicated as sufficient and good, only a few housewives with HIV infection specified low quality of life. It is important to identify the causes of low quality of life; therefore, in-depth interviews with low quality of life patients are needed to recognize the underlying precipitating factors.

Conclusions

This study found that the quality of life of HIV-infected housewives was most strongly associated with their beliefs in managing feelings of distress and managing clinical symptoms. Furthermore, other indicators of belief played a role in improving the quality of life of the participants, such as therapy management and drug adherence, managing symptoms, communication with healthcare providers, and obtaining support from others. The results of the study are expected to improve the quality of life of HIV-positive housewives, to be more confident and productive.

Disclosures

1. Institutional review board statement: The study was approved by the Research Ethics Committee at the Faculty of Nursing, Universitas Airlangga, Surabaya, with certificate number of 2038-KEPK, issued in 2020.
2. Assistance with the article: The authors would like to thank all the respondents at the Tulungagung AIDS Com-

mission for participating in the study. The authors also thank the research institutions for providing facilities to carrying out the study as well as all parties involved both directly and indirectly.
3. Financial support and sponsorship: None.
4. Conflict of interests: None.

References

1. Brust JCM, Shah NS, Mlisana K, Moodley P, Allana S, Campbell A, et al. Improved survival and cure rates with concurrent treatment for multidrug-resistant tuberculosis-human immunodeficiency virus coinfection in South Africa. Clin Infect Dis 2018; 66: 1246-1253.
2. Benítez-Gutiérrez L, Soriano V, Requena S, Arias A, Barreiro P, de Mendoza C, et al. Treatment and prevention of HIV infection with long-acting antiretrovirals. Expert Rev Clin Pharmacol 2018; 11: 507-517.
3. Satriawibawa IWE, Dewi Kumara Wati K, Windani IGAT, Adnyana IGANS, Wedaswari PD, et al. Factors associated with anxiety in children and adolescents with HIV infection. HIV AIDS Rev 2022; 21: 137-143.
4. Stockdale AJ, Saunders MJ, Boyd MA, Bonnett LJ, Johnston V, Wandeler G, et al. Effectiveness of protease inhibitor/nucleos (t) ide reverse transcriptase inhibitor–based second-line antiretroviral therapy for the treatment of human immunodeficiency virus type 1 infection in sub-Saharan Africa: a systematic review and meta-analysis. Clin Infect Dis 2018; 66: 1846-1857.
5. Ha JH, Van Lith LM, Mallalieu EC, Chidassicua J, Pinho MD, Devos P, Wirtz AL. Gendered relationship between HIV stigma and HIV testing among men and women in Mozambique: a cross-sectional study to inform a stigma reduction and male-targeted HIV testing intervention. BMJ Open 2019; 9: e029748. DOI: 10.1136/bmjopen-2019-029748.
6. Na'mah LU, Ediyono S. Effectiveness of Warga Peduli AIDS (Wpa) program in managing HIV/AIDS in Indonesia. Int J Med Sci Clin Res Studies 2022; 2: 429-432.
7. Nursalam N, Efendi F, Tristiana D, Misutarno M, Mafâmula D, Priyantini D. Family empowerment model based on belief and health related quality of life among housewives with HIV/AIDS. Syst Rev Pharm 2020; 11: 246-251.
8. Khumsaen N, Peawnalaw S. Factors associated with fear of COVID-19 among people living with HIV/AIDS in Suphanburi province, Thailand. Jp J Nurs Sci 2022; 19: e12480. DOI: 10.1111/jjns.12480.
9. Fuspita Y, Yona S, Waluyo A. HIV testing of housewives with HIV in Lampung, Indonesia: a qualitative study. Enfermería Clínica 2019; 29: 879-884.
10. Kurniawati HF, Kurniawati HF. Characteristics, source of information and knowledge of housewives about transmission of HIV and AIDS. Pakistan Journal of Medical & Health Sicences 2021; 15: 555-558.
11. Ernawati E, Rahayu SY, Kurniawan T. Life experiences of women (housewives) diagnosed HIV-AIDS in Serang. KnE Life Sci 2019; 272-283.
12 Prasetyanti DK, Nikmah AN, Tantriyani K. The effect of health promotion through audio visual media about HIV AIDS on housewives knowledge. Str J Ilm Kesehat 2021; 10: 1272-1279.
13. Tarigan YN, Woodman RJ, Miller ER, Wisaksana R, Wignall FS, Ward PR. Changes in the HIV continuum of care following expanded access to HIV testing and treatment in Indonesia: a retrospective population-based cohort study. PLoS One 2020; 15: e0239041. DOI: 10.1371/journal.pone.0239041.
14. Omonaiye O, Kusljic S, Nicholson P, Manias E. Medication adherence in pregnant women with human immunodeficiency virus receiving antiretroviral therapy in sub-Saharan Africa: a systematic review. BMC Public Health 2018; 18: 805. DOI: 10.1186/s12889-018-5651-y.
15. Quintana Y, Gonzalez Martorell EA, Fahy D, Safran C. A systematic review on promoting adherence to antiretroviral therapy in HIV-infected patients using mobile phone technology. Appl Clin Inform 2018; 9: 450-466.
16. Okoli C, de Los Rios P, Eremin A, Brough G, Young B, Short D. Relationship between polypharmacy and quality of life among people in 24 countries living with HIV. Prev Chronic Dis 2020; 17: E22. DOI: 10.5888/pcd17.190359.
17. Den Daas C, van den Berk GEL, Kleene MT, de Munnik ES, Lijmer JG, Brinkman K. Health-related quality of life among adult HIV positive patients: assessing comprehensive themes and interrelated associations. Qual Life Res 2019; 28: 2685-2694.
18. Zeng C, Li L, Hong YA, Zhang H, Babbitt AW, Liu C, et al. A structural equation model of perceived and internalized stigma, depression, and suicidal status among people living with HIV/AIDS. BMC Public Health 2018; 18: 138. DOI: 10.1186/s12889-018-5053-1.
19. Ophinni Y, Siste K, Wiwie M, Anindyajati G, Hanafi E, Damayanti R, Hayashi Y. Suicidal ideation, psychopathology and associated factors among HIV-infected adults in Indonesia. BMC Psychiatry 2020; 20: 255. DOI: 10.1186/s12888-020-02666-1.
20. Lu H, Sheng W, Liao S, Chang NT, Wu PY, Yang YL, Hsiao FH. The changes and the predictors of suicide ideation and suicide attempt among HIV-positive patients at 6–12 months post diagnosis: a longitudinal study. J Adv Nurs 2019; 75: 573–584.
21. Mekonnen N, Abdulkadir M, Shumetie E, Baraki AG, Yenit MK. Incidence and predictors of loss to follow-up among HIV infected adults after initiation of first line anti-retroviral therapy at University of Gondar comprehensive specialized Hospital Northwest Ethiopia, 2018: retrospective follow up study. BMC Res Notes 2019; 12: 111. DOI: 10.1186/s13104-019-4154-y.
22. Kebede HK, Mwanri L, Ward P, Gesesew HA. Predictors of lost to follow up from antiretroviral therapy among adults in sub-Saharan Africa: a systematic review and meta-analysis. Infect Dis Poverty 2021; 10: 33. DOI: 10.1186/s40249-021-00822-7.
23. Hasanah H, Sulistiadi W. HIV/AIDS infection among housewives in Asia: a systematic review. Promot Popul Ment Heal Well-Being 2019; 2019: 219-228.
24. Miftahussurur M, Priyantini D, Mahmudah I, Alfaray RI. Quality of life and related factors among hepatitis B virus infected individuals. Int J Psychosoc Rehabil 2020; 24: 9693–9699.
25. Ekstrand ML, Heylen E, Mazur A, Steward WT, Carpenter C, Yadav K, et al. The role of HIV stigma in ART adherence and quality of life among rural women living with HIV in India. AIDS Behav 2018; 22: 3859-3868.
26. Rooney AS, Moore RC, Paolillo EW, Gouaux B, Umlauf A, Letendre SL, et al. Depression and aging with HIV: associations with health-related quality of life and positive psychological factors. J Affect Disord 2019; 251: 1-7.
27. Schaefer A, Paar G, Kriebel R, Stäcker K. Psychotherapy among HIV patients: a look at a psychoimmunological research study after 20 years. In: Somatoform and Other Psychosomatic Disorders. Springer; 2018, pp. 149-162.
28. Misgina KH, Weldu MG, Gebremariam TH, Weledehaweria NB, Alema HB, Gebregiorgis YS, Tilahun YG. Predictors of mortality among adult people living with HIV/AIDS on antiretroviral therapy at Suhul Hospital, Tigrai, Northern Ethiopia: a retrospective follow-up study. J Health Popul Nutr 2019; 38: 37. DOI: 10.1186/s41043-019-0194-0.
29. Zicari S, Sessa L, Cotugno N, Ruggiero A, Morrocchi E, Concato C, et al. Immune activation, inflammation, and non-AIDS co-morbidities in HIV-infected patients under long-term ART. Viruses 2019; 11: 200. DOI: 10.3390/v11030200.

30. Poznyak AV, Bezsonov EE, Borisov EE, Grechko AV, Kartuesov AG, Orekhov AN. Atherosclerosis in HIV patients: what do we know so far? Int J Mol Sci 2022; 23: 2504. DOI: 10.3390/ijms23052504.
31. Lambert CC, Fazeli PL, Yigit I, Elopre L, King K, Kempf MC, et al. The mediating role of social support and resilience between HIV -related stigmas and patient activation among young black women living with HIV in the Southern United States: a cross-sectional study. J Assoc Nurses AIDS Care 2022; 33: 78-88.
32. Taylor BS, Fornos L, Tarbutton J, Muñoz J, Saber JA, Bullock D, et al. Improving HIV care engagement in the south from the patient and provider perspective: the role of stigma, social support, and shared decision-making. AIDS Patient Care STDS 2018; 32: 368-378.
33. Mi T, Li X, Zhou G, Qiao S, Shen Z, Zhou Y. HIV disclosure to family members and medication adherence: role of social support and self-efficacy. AIDS Behav 2020; 24: 45-54.
34. Yan H, Li X, Li J, Wang W, Yang Y, Yao X, et al. Association between perceived HIV stigma, social support, resilience, self-esteem, and depressive symptoms among HIV-positive men who have sex with men (MSM) in Nanjing, China. AIDS Care 2019; 31: 1069-1076.
35. Ward KM, Falade-Nwulia O, Moon J, Sutcliffe CG, Brinkley S, Haselhuhn T, et al. A randomized controlled trial of cash incentives or peer support to increase HCV treatment for persons with HIV who use drugs: the CHAMPS study. Open Forum Infect Dis 2019; 6: ofz166. DOI: 10.1093/ofid/ofz166.
36. Cabral HJ, Davis-Plourde K, Sarango M, Fox J, Palmisano J, Rajabiun S. Peer support and the HIV continuum of care: results from a multi-site randomized clinical trial in three urban clinics in the United States. AIDS Behav 2018; 22: 2627-2639.