Journal of Multidisciplinary Healthcare

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ORIGINAL RESEARCH

# A Study on AIDS Self-Management Status and Its Influencing Factors

Dong-Xia Wu[1,*], Jing-Xian Hu[2,*], Jian-Hong Ma[1,*], Ke-Yi Chang[1,*], Yun Zhang[1], Xiao-Li Quan[1], Jia-Ning Han[1], Hai-Jing Long[1], Chen Chen[1], Wei Zhai[1], Huan-Huan Guo[1], Li-Li Zhang[2], Xiao-Lan Wang[2]

[1]Department of Infection and Immunology, Beijing Youan Hospital, Capital Medical University, Beijing, 100069, People's Republic of China; [2]Department of Nursing, Beijing Youan Hospital, Capital Medical University, Beijing, 100069, People's Republic of China

*These authors contributed equally to this work

Correspondence: Li-Li Zhang; Xiao-Lan Wang, Department of Nursing, Beijing Youan Hospital, Capital Medical University, No. 8 of Xitoutiao, Fengtai District, Beijing, 100069, People's Republic of China, Tel/Fax +86 010 8399 7143, Email lillizhang3200z@163.com

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**Purpose:** To investigate and analyse the status quo of the self-management of patients living with HIV/AIDS (PLWHA) and its influencing factors and to provide the basis for formulating intervention strategies.

**Methods:** In this cross-sectional study, 300 PLWHA who visited the Infection Center of Beijing Youan Hospital, Capital Medical University between September 2021 and December 2021 were enrolled using the convenience sampling method. Demographic characteristics and disease-related data were collected for each participant. The HIV/AIDS Self-Management Scale was used to evaluate the self-management ability of PLWHA.

**Results:** A total of 251 male and 49 female PLWHA were included in this study, with an average age of 39.08 ± 12.09 years and an average disease duration of 9.61 ± 37.04 months. Univariate analysis showed that the PLWHA's place of residence, educational level, physical condition, family relations, duration of HIV disease, receipt or not of antiviral therapy and knowledge of disease had an influence on the scores of the HIV Self-Management Scale (all $p < 0.05$). The results of the self-management scores indicated that the total score for self-management was 41.5 ± 6.4 points, with a scoring rate of 69.6%, which was at a medium level. Long-term self-management had the highest scoring rate (12.2 ± 2.5 points), followed by daily health management (22.3 ± 4.3 points), and social support for self-management had the lowest scoring (5.1 ± 0.9 points). Multivariable analysis showed that the self-management ability of PLWHA was related to educational level, duration of disease and family relations ($R^2 = 0.67$, $F = 121.7$, $p < 0.05$).

**Conclusion:** The self-management level of patients with AIDS, especially the social support of daily health management and self-management, needs to be further improved. Educational level, duration of disease and family relations are important factors influencing the self-management of PLWHA.

**Keywords:** HIV/AIDS, AIDS, self-management

## Introduction

According to data from the Joint United Nations Programme on HIV/AIDS, 39.0 million people worldwide were living with HIV in 2022.[1] The latest data in China shows that 1.14 million patients are living with AIDS and that there are 111,000 new infection cases in mainland China.[2] At present, China implements the policy of "four immunisations and one care" for patients with AIDS, which provides free HIV testing, treatment, prevention and care services and help for infected individuals and patients. Because of the incurability, contagiousness and social discrimination of the disease,[3–5] many factors, such as family breakdown, contribute to psychological problems, such as anxiety and depression, in the self-management of people living with HIV/AIDS (PLWHA).[6] Depression has a particularly negative impact on treatment adherence and quality of life in PLWHA, which further impacts patient adherence to antiviral therapy. Studies have shown that adherence to antiretroviral therapy among PLWHA should exceed 95%, thus guaranteeing the effectiveness of therapy.[7,8]

Received: 1 March 2024
Accepted: 25 June 2024
Published: 7 September 2024



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The ability of PLWHA to follow medical advice in daily life is related to their skills and knowledge of response to antiviral therapy, as well as their self-management abilities. The term "self-management" was first proposed by Creer et al[8] in the book, *Rehabilitation of Children with Chronic Disease*, and was defined as PLWHA's active involvement in therapy. Since then, the term "self-management" has been widely used in chronic disease studies. In the field of HIV/AIDS, Gifford et al[9] defined it in their study on self-management health education as various behaviours, attitudes or emotions that patients actively seek to improve health outcomes. As a secondary preventive model, self-management has been recognised as the best measure to alleviate the disease and maximise health outcomes.[10] As early as 1999, the Stanford University Education Research Center[9] completed an active self-management intervention study for PLWHA. Compared with the control group, the symptom severity index of PLWHA in the experimental group was significantly reduced, and their health behaviours were significantly improved. Thereafter, scholars from the UK, Thailand and China have also applied self-management to PLWHA.[11–13] Studies have shown that effective disease self-management of PLWHA may directly or indirectly reduce the susceptibility to comorbidities, ease the symptoms, improve the quality of life and significantly reduce the incidence of hospitalisation, thus relieving the economic burden on individuals and families.[14,15] This suggests that effective disease self-management is the key to achieving healthy outcomes for PLWHA.

However, factors influencing the disease self-management of PLWHA are diverse and complex, and there exists a certain correlation between these influencing factors. According to existing studies, the factors influencing the self-management of PLWHA can be summarised as demographic factors, disease factors, psychological factors and social factors.[15,16] Studies[17,18] have shown that factors such as age, gender, marital status, whether sexual orientation is clear, education level, economic status and residence can affect the self-management level of PLWHA. Other factors, such as self-efficacy and social support, can also influence patients' self-management of AIDS.[19,20] However, there is no clear conclusion on how these factors affect the level of disease self-management, and the mechanism of interaction between these influencing factors is also unclear and needs to be further studied and discussed.

At present, no study has clarified the exact influencing factors of PLWHA self-management and treatment compliance or determined which aspects can be changed to reduce the symptomatic incidence of PLWHA. This study investigates and analyses the current status and influencing factors of the self-management ability of PLWHA to provide an objective basis for medical staff to provide accurate and effective self-care education for PLWHA.

# Materials and Methods

## Sample

For the sample size calculation, the size was estimated based on factor analysis, which indicated that the sample size should be 5–10 times the number of items. The HIV Self-Management Scale for PLWHA includes 20 items, and the sample size is increased by 20%;[21] therefore, the sample size was 120–240, considering the possibility of fewer items and invalid responses in the questionnaire. In this study, a total of 300 questionnaires were distributed, all of which were recovered and valid, with an effective recovery rate of 100%.

This study was cross-sectional. A convenience sampling method was used to investigate 300 cases of PLWHA at the Infection Center of Beijing Youan Hospital, Capital Medical University between September 2021 and December 2021. The inclusion criteria were as follows: patients (1) diagnosed as PLWHA in compliance with the 2002 *Diagnostic Criteria and Principles of HIV/AIDS (National Standard of People's Republic of China)*; (2) aged >18 years; (3) displaying clear consciousness and the ability to answer questions accurately; and (4) who volunteered for this study. The exclusion criteria were as follows: (1) aged <18 years; and (2) history of severe mental illness (assessed by history and clinician diagnosis). This study was approved by the Ethics Committee of Beijing Youan Hospital (No.: LL-2021-160-K), and all participants gave informed consent and signed written consent forms.

## Data Collection

Data were collected through a paper-based questionnaire survey. The trained and experienced researchers explained the research purpose, procedures, potential risks and benefits to the participants before the survey and ensured their confidentiality and voluntary participation. Each participant signed the informed consent form and completed the self-

report survey, including demographics and the HIV Self-Management Scale. General demographic characteristics included the following: gender, age, ethnicity, religion and place of residence; disease-related information included the following: duration of disease, whether relatives and friends were informed, whether antiviral therapy was received and whether regular reviews followed as prescribed by the physicians.[22]

## Instruments

The self-management ability of PLWHA was assessed using the PLWHA Self-Management Scale. In this study, the HIV Self-Management Scale, as developed by Webel et al[23] in 2012, was used. This scale has a total of 20 items and is divided into three dimensions: daily health management, social support for self-management and the long-term nature of self-management. Each item is scored on a scale of 0–3 (0 = N/A, 1 = Never, 2 = Occasionally, 3 = Always), with a total score of 60 points. The higher the score is, the better the self-management ability of PLWHA. The total score of each dimension and scale is the sum of the scores of each item included.[24]

Since the number of items in each dimension of the scale is different, for unified comparison, the self-management level of PLWHA was compared based on the scoring rate (scoring rate = actual score of the dimension [average score] ÷ full score of the dimension × 100%). The self-management level of PLWHA is divided into three levels – high, medium and low – by the scoring rate, as follows: high level ≥80% (48 points); medium level = 60–80% (36–48 points); low level ≤60% (36 points).[25] Upon authorisation by Webel, the scale was "Chineseised" and cross-culturally adapted in accordance with the guidelines for cross-cultural adaptation of the scale recommended by the Evidence-Based Medicine Committee of the American Academy of Orthopedic Surgeons,[26] and the Chinese version of the HIV Self-Management Scale was finally formed. According to the Chinese version of the HIV Self-Management Scale, Cronbach's alpha reliability coefficient (α) is 0.878, the test-retest reliability is 0.933 and the content validity is 0.972.[25]

## Statistical Analysis

Statistical analysis was performed using SPSS 26.00 statistical software (IBM, Armonk, NY, USA), and the Kolmogorov–Smirnov test was used for the normality test.[27] Measurement data satisfying normality were expressed as mean ± standard deviation ($\bar{x} \pm s$). Means between two groups were analysed using the independent samples *t*-test, means between multiple groups were compared via one-way analysis of variance and ranked data were tested using the rank sum test. Enumeration data are presented as frequency (*n*) or rate (%).

To further explore the factors influencing the self-management of PLWHA, enter regression analysis was performed using the scores of the HIV Self-Management Scale of the respondents as the dependent variable and the variables with statistically significant differences in univariate analysis as the independent variables. The assignment of differential factors in the univariate analysis is shown in Table 1, and the original duration of the disease was entered. All variables were included, set the same prior probability and passed the collinearity test. A *p*-value of <0.05 was considered to indicate a significant difference.

**Table 1** Assignment of Independent Variables in Multilinear Stepwise Regression

| Independent Variable | Classification | Assignment |
|---|---|---|
| Place of residence | Town | 1 |
| | Country | 2 |
| Educational level | Elementary school and below | 1 |
| | Middle school/technical secondary school | 2 |
| | University/college and above | 3 |

(*Continued*)

**Table 1** (Continued).

| Independent Variable | Classification | Assignment |
|---|---|---|
| Physical conditions | Poor | 1 |
| | General | 2 |
| | Good | 3 |
| Family relations | Troubled | 1 |
| | General | 2 |
| | Good | 3 |
| Antiviral therapy received or not | No | 1 |
| | Yes | 2 |
| Knowledge of disease | No | 1 |
| | Only part | 2 |
| | Yes | 3 |

# Results

## Comparison of General Information and Scores of the HIV Self-Management Scale in Patients Living with HIV/AIDS

A total of 300 PLWHA were enrolled, including 251 men and 49 women, with an average age of 39.1 ± 12.1 years and an average disease duration of 9.6 ± 37.0 months. Univariate analysis showed that residence, educational level, physical condition, family relations, duration of HIV disease, receipt or not of antiviral therapy and knowledge of disease were related to the scores of the HIV Self-Management Scale (all $p < 0.05$). Gender, age, ethnicity, religion, work status, household incomes per capita, smoking status, drinking status, relatives and friends informed or not and clinical symptoms regularly checked or not did not affect the scores of the HIV Self-Management Scale (all $p > 0.05$) (Table 2).

**Table 2** Comparison of PLWHA General Information and Scores of HIV Self-Management Scale Among Various Factors

| Item | n | Score (±s) | *t/F/Z* value | *P* value |
|---|---|---|---|---|
| Gender | | | 0.8 | 0.422 |
| Male | 251 | 41.3±6.8 | | |
| Female | 49 | 40.9±7.2 | | |
| Age | | | −1.3 | 0.179 |
| <30 | 81 | 40.4±8.4 | | |
| 30~ | 140 | 40.24±7.66 | | |
| >50 | 79 | 43.13±7.34 | | |
| Nationality | | | 0.7 | 0.491 |
| Han nationality | 256 | 40.2±7.3 | | |
| Other | 44 | 39.4±6.4 | | |
| Place of residence | | | 4.8 | 0.006 |
| Town | 246 | 40.7±6.5 | | |
| Country | 54 | 37.3±7.6 | | |
| Religion | | | 0.03 | 0.976 |
| Yes | 243 | 40.4±7.9 | | |
| No | 57 | 40.7±7.5 | | |

(*Continued*)

**Table 2** (Continued).

| Item | n | Score (±s) | *t*/*F*/*Z* value | *P* value |
|---|---|---|---|---|
| Educational level | | | 17.5 | <0.001 |
| Elementary school and below | 21 | 35.9±7.8 | | |
| Middle school/technical secondary school | 113 | 38.6±7.8 | | |
| University/college and above | 166 | 42.2±7.8 | | |
| Working status | | | 0.8 | 0.397 |
| Currently working | 245 | 41.5±7.9 | | |
| Retired | 21 | 41.6±6.9 | | |
| Unemployed | 34 | 40.7±7.6 | | |
| Household incomes per capita (yuan) | | | 1.1 | 0.275 |
| | 27 | 40.7±7.2 | | |
| | 107 | 40.5±8.2 | | |
| | 108 | 40.6±7.5 | | |
| | 58 | 40.6±7.1 | | |
| Smoking status | | | 1.3 | 0.286 |
| Smoking | 74 | 40.59±7.12 | | |
| Already quit smoking | 21 | 39.3±6.5 | | |
| Never | 205 | 39.24±6.97 | | |
| Drinking status | | | 0.6 | 0.546 |
| No | 246 | 39.7±6.7 | | |
| Yes | 54 | 40.4±7.2 | | |
| Physical conditions | | | 4.5 | 0.008 |
| Poor | 51 | 38.5±7.6 | | |
| General | 182 | 40.5±6.8 | | |
| Good | 67 | 42.3±7.0 | | |
| Family relations | | | 5.6 | 0.003 |
| Troubled | 56 | 38.2±8.3 | | |
| General | 153 | 40.0±6.5 | | |
| Good | 91 | 42.5±5.9 | | |
| Duration of HIV disease (months) | | | 7.3 | <0.001 |
| <24 | 152 | 36.5±7.2 | | |
| 24~ | 78 | 41.9±7.8 | | |
| >60 | 70 | 43.8±7.0 | | |
| Relatives and friends informed or not | | | 0.4 | 0.647 |
| No | 112 | 39.9±7.4 | | |
| Yes | 188 | 40.5±6.8 | | |
| Antiviral therapy received or not | | | −2.6 | 0.010 |
| No | 57 | 38.9±8.2 | | |
| Yes | 243 | 41.6±7.7 | | |
| Regular physical examination done or not | | | 0.4 | 0.640 |
| No | 51 | 39.9±7.8 | | |
| Yes | 249 | 40.9±7.3 | | |
| Clinical symptoms | | | 0.6 | 0.561 |
| No | 132 | 40.6±7.3 | | |
| Yes | 168 | 40.6±7.6 | | |
| Knowledge of disease | | | 3.5 | 0.032 |
| No | 52 | 38.4±7.2 | | |
| Only part | 122 | 41.3±8.0 | | |
| Yes | 126 | 43.5±7.5 | | |

**Note**: PLWHA: People living with HIV/AIDS, HIVASMS: People Living with HIV/AIDS Self-Management Scale. *T*: T-test *of two independent samples. F: One-way ANOVA. Z: Rank sum test.*

## Current Self-Management Scores of Patients Living with HIV/AIDS

The results showed that the total score of the HIV Self-Management Scale of all patients was 41.5 ± 6.4, and the scoring rate was 69.6%, which was at the medium level. The scoring rates of the three dimensions of the HIV Self-Management Scale were as follows: long-term self-management had the highest scoring rate at 81.2%, with an average score of 12.2 ± 2.5; the scoring rate of daily health management was 65.1%, and the average score was 22.3 ± 4.3; the satisfaction of social support to self-management was the lowest scoring rate at 62.9%, with a with an average score of 5.1 ± 0.9, as shown in Table 3.

## Multivariable Analysis of Factors Influencing the Self-Management of Patients Living with HIV/AIDS

The results of the enter regression showed that educational level, place of residence, duration of disease and family relations can explain the scoring rate of 68.8% for the self-management of PLWHA ($F$ = 124.9, $p < 0.05$), and the dependent variable – the self-management of PLWHA – and the four independent variables were well fitted. The Durbin–Watson index was 1.99, suggesting that there was no correlation between the independent variables of the model. The significance test results of the four independent variables in the model showed that $p \leq 0.05$ for all, indicating that the four independent variables were statistically significant in the model and should be retained. In addition, the variance inflation factor values of the four independent variables were all considerably <10, meaning there was no collinear relationship between variables, and the multiple linear regression equation was as follows:

$$Y = 18.945 + 0.523X_1 + 0.332X_2 + 0.212X_3 + 0.413X_4$$

According to the partial regression coefficient in the model, it can be concluded that the influence of four independent variables on the self-management of PLWHA was as follows: educational level > place of residence > duration of disease > family relations, as shown in Table 4.

# Discussion

The results showed that the total self-management score was 41.5 ± 6.4 points and the scoring rate was 69.6%, which is at a medium level. The overall level of self-management of PLWHA is not encouraging and needs to be further improved, in agreement with the results of other studies.[28,29] The three dimensions of self-management in this study

**Table 3** Current Self-Management Scores of PLWHA

| Item | Number | Scoring Range | Average Score | Scoring Rate (%) | Ranking |
|---|---|---|---|---|---|
| Long-term nature of self-management | 5 | 0~15 | 12.2±2.5 | 81.2 | 1 |
| Daily health management | 12 | 0~36 | 22.3±4.3 | 65.1 | 2 |
| Social support for self-management | 3 | 0~9 | 5.1±0.9 | 62.9 | 3 |
| Total | 20 | 0~60 | 41.5±6.4 | 69.6 | - |

**Abbreviation**: PLWHA, People living with HIV/AIDS.

**Table 4** Multivariate Analysis of PLWHA Self-Management Status

| Variable | Standard error | Partial Regression Coefficient | *95% CI* | *P* value | VIF |
|---|---|---|---|---|---|
| Constant | 2.167 | 18.945 | – | <0.001 | – |
| Educational level | 1.427 | 0.523 | 0.327~0.914 | <0.001 | 1.01 |
| Duration of disease | 1.461 | 0.332 | 0.231~0.415 | <0.001 | 1.05 |
| Family relations | 0.754 | 0.212 | 0.159~0.339 | <0.001 | 1.12 |
| Place of residence | 1.287 | 0.413 | 0.207~0.517 | <0.001 | 1.04 |

**Note**: $R$ =0.834, $R^2$=0.688, adjusted $R^2$=0.641, $F$ =124.9, $P$ <0.05. *95% CI* is 95% confidence interval.

were the long-term nature of self-management, daily health management and social support for self-management in descending order of scoring rate, and this result was consistent with Webel's results.[30] This may be because PLWHA tend to ignore daily life behaviours including diet, sleep and exercise early in antiviral therapy, and most PLWHA are reluctant to disclose their disease to family and friends and are less willing to actively seek help from others.[31] Although discrimination is avoided to a certain extent, it also causes problems of increased physical and mental stress and insufficient social support.[32] Studies have shown that the more social support PLWHA receive, the better they can adapt to the disease, the fewer related symptoms they have and the better their quality of life, mood and health.[32,33] This signals medical staff to educate PLWHA about the importance of daily health management and inform them of the benefits of telling family, friends or trustworthy persons of their disease to help them obtain more social support and thereby improve their daily self-management ability and quality of life.

In terms of educational level, the results indicated that PLWHA with higher educational levels had higher self-management levels. This may be because they have adequate knowledge of HIV/AIDS[34] and have more access to relevant scientific knowledge through channels such as the internet, media and television. Active and effective health science education enables PLWHA to master disease-related knowledge. The managerial competence of PLWHA increases with the increase in knowledge.[35,36] Therefore, in clinical work, health education should be strengthened for PLWHA with low levels of education to guide them to acquire more HIV/AIDS-related knowledge and strengthen adherence to antiviral therapy;[37] this will help them to better manage their symptoms and disease after leaving hospital and improve their self-management level. As far as the place of residence is concerned, patients living in cities have better self-management ability. This may be related to his more convenient medical treatment, more convenient access to disease-related knowledge and more access channels. This suggests that we should pay more attention to patients living in rural areas and give them more convenience and care.

In terms of duration of disease, the results show that the self-management ability of PLWHA with a long disease duration is better than that of those with a short disease duration, in agreement with the results of Webel et al.[37] Previous studies also found that as the duration of the disease increases, PLWHA become more familiar with and better at understanding their condition after more visits, have more opportunities to receive AIDS health education from medical staff and acquire more disease-related knowledge accordingly.[38] We suggest that, in clinical health education, targeted intervention should be provided according to different durations of disease. The PLWHA with a short duration of disease should be given more opportunities to communicate with other patients (eg "patient community" and www.120x.net) to obtain more social support, while for PLWHA with a long duration of disease, medical staff should help them establish a habitual pattern of self-management (eg as a repeated, individualised and progressively intensive health education model) to help them build confidence in controlling the disease, thereby improving their self-management ability.

In terms of family relations, the results show that PLWHA with better family relations have better self-management ability. Family members can provide patients with better home care, effectively alleviate or eliminate PLWHA's negative psychology and shift their attention to their own health, thereby improving their self-management capabilities.[39] This reminds medical staff that in addition to effective communication with PLWHA, they should communicate with their family members or trusted persons to help PLWHA gain understanding and help from people around them and to continuously increase their ability to adapt to the current disease by mobilising external forces, such as family and society.[40]

This study has certain limitations. First, it is a cross-sectional study, which may have led to some bias, preventing causal interpretations of the results; longitudinal studies are needed to determine the causal relationship. The participants in this study have geographical limitations and the survey was only conducted in one hospital. In addition, due to the significant difference in the number of male and female patients, more female patients need to be included in future studies to verify the conclusions of this study regarding gender. It is recommended to further expand the scope of future studies to ensure its extensiveness, practicability and applicability in the Chinese population. Of course, there are still many factors affecting self-management ability that have not been measured and included in the analysis in this study. We will try to include more influencing factors in further research. This is also added to the limitations of this study.

## Conclusions

The self-management status of PLWHA is relatively poor, and the social support for their daily health management and self-management needs to be further improved. Educational level, place of residence, duration of disease and family

relations are important factors influencing the self-management of PLWHA. Future practice should focus on strengthening the AIDS publicity of PLWHA, increasing the content of self-management and training the self-care skills of people infected with HIV. Pay more attention to patients living in rural areas and give them more convenience and care. At the same time, more family and social services and support for elderly patients and special groups should be strengthened. The patient's family system should be fully utilised to improve the therapeutic effect and quality of life.

## Data Sharing Statement

All data generated or analyzed during this study are included in this published article.

## Ethics Approval and Consent to Participate

This study was conducted in accordance with the declaration of Helsinki. The study involving human participants were reviewed and approved by the Beijing Youan Hospital of China Capital Medical University. The Ethics Committee archive number is LL-2021-160-K.The patients/participants provided their written informed consent to participate in this study.

## Consent for Publication

The manuscript is not submitted for publication or consideration elsewhere.

## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

## Funding

This work was supported by Beijing Hospitals Authority Youth Programme, No.: QML20211714; This work was supported by Beijing You'an Hospital, Capital Medical University, 2021 Hospital Young and middle-aged Talents Incubation Project (special construction project-nursing research), No.:YAKTHL2021006 and No.: YAKTHL2021003.

## Disclosure

The authors declare that they have no competing interests in this work.

## References

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). THE PATH THAT ENDS AIDS, 2023 UNAIDS GLOBAL AIDS UPDATE [EB/OL]. Available from: https://thepath.unaids.org/wp-content/themes/unaids2023/assets/files/2023_report.pdf. Accessed July 13, 2023.
2. Tao Y, Xiao X, Xie J, Wang HH. Progress in the status quo of disease self-management and influencing factors in AIDS patients. *J Nurs Training*. 2022;37(11):978–983.
3. Shidiq KM, Nelwan EJ, Yunihastuti E, Harimurti K, Pohan HT. Clinical evaluation of HIV/AIDS patients on antiretroviral therapy using HIV symptoms index: a reliability and applicability evaluation using Indonesian language. *Acta Med Indones*. 2021;53(1):52–59.
4. Bristowe K, Murtagh FEM, Clift P, et al. The development and cognitive testing of the positive outcomes HIV PROM: a brief novel patient-reported outcome measure for adults living with HIV. *Health Qual Life Outcomes*. 2020;18(1):214. doi:10.1186/s12955-020-01462-5
5. Dong N, Chen WT, Lu H, Zhu Z, Hu Y, Bao M. Unmet needs of symptom management and associated factors among the HIV-positive population in Shanghai, China: a cross-sectional study. *Appl Nurs Res*. 2020;54:151283. doi:10.1016/j.apnr.2020.151283
6. Mishkin K, Nugmanova Z, Urbaeva J, et al. Anxiety and depression among women living with HIV in Kazakhstan. *AIDS Care*. 2021;33(2):172–179. doi:10.1080/09540121.2020.1719277
7. Kroidl A, Burger T, Urio A, et al. High turnaround times and low viral resuppression rates after reinforced adherence counselling following a confirmed virological failure diagnostic algorithm in HIV-infected patients on first-line antiretroviral therapy from Tanzania. *Trop Med Int Health*. 2020;25(5):579–589. doi:10.1111/tmi.13373
8. Creer TL, Renne CM, Christian WP. Behavioral contributions to rehabilitation and childhood asthma. *Rehabil Lit*. 1976;37(8):226–32,247.
9. Gifford AL, Sengupta S. Self-management health education for chronic HIV infection. *AIDS Care*. 1999;11(1):115–130. doi:10.1080/09540129948243
10. Yang H, Wu D. The effects of telephone follow-up continuity of care on non-medicine measure of secondary prevention of patients with coronary heart disease. *Med Res Edu*. 2016;33(3):29–33,37.

11. Kennedy A, Rogers A, Crossley M. Participation, roles, and the dynamics of change in a group-delivered self-management course for people living with HIV. *Qual Health Res*. 2007;17(6):744–758. doi:10.1177/1049732307302754
12. Khumsaen N, Stephenson R. Feasibility and Acceptability of an HIV/AIDS self-management education program for hiv-positive men who have sex with men in Thailand. *AIDS Educ Prev*. 2019;31(6):553–566. doi:10.1521/aeap.2019.31.6.553
13. An X, Han Y, Zhang X, et al. A study on application of positive self management theory in HIV/AIDS prevention and control. *Chinese J AIDS & STD*. 2014;20(6):418–422.
14. Boucher LM, O'Brien KK, Baxter LN, Fitzgerald ML, Liddy CE, Kendall CE. Healthy aging with HIV: the role of self-management support. *Patient Educ Couns*. 2019;102(8):1565–1569. doi:10.1016/j.pec.2019.02.019
15. Zhang H, Yin Y, Wang H, et al. Identification of self-management behavior clusters among people living with HIV in china: a latent class profile analysis. *Patient Prefer Adherence*. 2021;15:1427–1437. doi:10.2147/PPA.S315432
16. Iribarren S, Siegel K, Hirshfield S, et al. Self-management strategies for coping with adverse symptoms in persons living with HIV with HIV associated non-AIDS conditions. *AIDS Behav*. 2018;22(1):297–307. doi:10.1007/s10461-017-1786-6
17. Kim GS, Chu SH, Park Y, et al. Psychometric properties of the Korean version of the HIVself-management scale in patients with HIV. *J Korean Acad Nurs*. 2015;45(3):439–448. doi:10.4040/jkan.2015.45.3.439
18. Wang H, Chen AC, Wan S, Chen H. Status and associated factors of self-management in people living with HIV/AIDS in Liangshan area, China: across-sectional study. *Patient Prefer Adherence*. 2019;13:863–870. doi:10.2147/PPA.S203799
19. Li W, Cui L, Xiaoda Z. Influencing factors and related analysis of stigma, self-efficacy and self-management behavior of AIDS patients. *Gen Pract Nurs*. 2020;18(35):5013–5017.
20. Wang K, Chen WT, Zhang L, Bao M, Zhao H, Lu H. Facilitators of and barriers to HIV self-management: perspectives of HIV-positive-women in China. *Appl Nurs Res*. 2016;32:91–97. doi:10.1016/j.apnr.2016.06.004
21. Dun RL, Tsai J, Hu XH, et al. A systematic review of cross-cultural adaptation of the NATIONAL INSTITUTES of health chronic prostatitis symptom index. *Health Qual Life Outcomes*. 2021;19(1):159. doi:10.1186/s12955-021-01796-8
22. Kall M, Fresán U, Guy D, et al. Quality of life in people living with HIV in Romania and Spain. *BMC Infect Dis*. 2021;21(Suppl 2):898. doi:10.1186/s12879-021-06567-w
23. Webel AR, Asher A, Cuca Y, et al. Measuring HIV self-management in women living with HIV/AIDS: a psychometric evaluation study of the HIV Self-management Scale. *J Acquir Immune Defic Syndr*. 2012;60(3):e72–81. doi:10.1097/QAI.0b013e318256623d
24. Ma H, Hu Z, Wang Z, Ma Y, Zhai H, Li J. Development and validation of a new comprehensive assessment scale of HIV-related psychological distress in China: a methodological study. *J Assoc Nurses AIDS Care*. 2023;34(3):292–306. doi:10.1097/JNC.0000000000000402
25. Chen X, Lin G, Chen X. Self-efficacy and Its Correlationship of HIV Infected Persons/AIDS Patients. *Military Nurs*. 2014;31(6):31–33.
26. Ferreira AC, Teixeira AL, Silveira MF, Carneiro M. Quality of life predictors for people living with HIV/AIDS in an impoverished region of Brazil. *Rev Soc Bras Med Trop*. 2018;51(6):743–751. doi:10.1590/0037-8682-0442-2017
27. Xie J, Li L. Individualized luteal phase support in artificially prepared frozen embryo transfer cycles based on serum progesterone levels: comments on the utilization of Kolmogorov-Smirnov test in normality analysis. *Hum Reprod*. 2021;36(9):2622. doi:10.1093/humrep/deab142
28. Huang Q, Guan J, Li X, Tong Q, Li Y, Peng Q. Status and Influencing Factors of Self-management Ability in 240 People Living with HIV/AIDS. *J Nurs*. 2017;24(22):46–49.
29. Chen WT, Shiu C, Yang JP, et al. A structural equation model of patient-healthcare provider relationships and HIV-infected patient outcomes in Chinese populations. *AIDS Care*. 2018;30(3):383–390. doi:10.1080/09540121.2017.1380778
30. Webel AR, Sattar A, Schreiner N, Kinley B, Moore SM, Salata RA. The impact of mental wellness on HIV self-management. *J Assoc Nurses AIDS Care*. 2016;27(4):468–475. doi:10.1016/j.jana.2016.03.002
31. Perry NS, Remmert JE, Psaros C, Pinkston M, Safren SA. Learning to address multiple syndemics for people living with HIV through client perspectives on CBT. *Psychother Res*. 2019;29(4):492–502. doi:10.1080/10503307.2017.1380863
32. Niu L, Luo D, Chen X, et al. Longitudinal trajectories of emotional problems and unmet mental health needs among people newly diagnosed with HIV in China. *J Int AIDS Soc*. 2019;22(8):e25332. doi:10.1002/jia2.25332
33. Miller JJ, Pozehl BJ, Alonso W, Schmaderer M, Eisenhauer C. Intervention components targeting self-management in individuals with multiple chronic conditions: an integrative review. *West J Nurs Res*. 2020;42(11):948–962. doi:10.1177/0193945920902146
34. Jennings L, West RL, Halim N, et al. Protocol for an evaluation of adherence monitoring and support interventions among people initiating antiretroviral therapy in Cape Town, South Africa-a multiphase optimization strategy (MOST) approach using a fractional factorial design. *Trials*. 2023;24(1):310. doi:10.1186/s13063-023-07322-z
35. Xu X, Qin Y, Hu Y. Effect of health management on medication compliance and the rate of follow-up among AIDS patients. *J Nurs Administrat*. 2011;1l(1):57–58.
36. Levison J, McKinney J, Duque A, et al. Breastfeeding among people with human immunodeficiency virus in north america: a multisite study. *Clin Infect Dis*. 2023;77(10):1416–1422. doi:10.1093/cid/ciad235
37. Webel AR, Higgins PA. The relationship between social roles and self-management behavior in women living with HIV/AIDS. *Women's Health Issues*. 2012;22(1):e27–33. doi:10.1016/j.whi.2011.05.010
38. Iriarte E, Cianelli R, De Santis JP, et al. Multidimensional frailty, quality of life and self-management in aging Hispanics living with HIV. *J Appl Gerontol*. 2024;7334648231211743.
39. Liu H, Zhao M, Ren J, et al. Identifying factors associated with depression among men living with HIV/AIDS and undergoing antiretroviral therapy: a cross-sectional study in Heilongjiang, China. *Health Qual Life Outcomes*. 2018;16(1):190. doi:10.1186/s12955-018-1020-x
40. Hejazi SS, Hosseini M, Ebadi A, Alavi Majd H. Components of quality of life in hemodialysis patients from family caregivers' perspective: a qualitative study. *BMC Nephrol*. 2021;22(1):379. doi:10.1186/s12882-021-02584-8

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