ORIGINAL ARTICLE

Factors affecting quality of life in HIV/AIDS patients: clinical model analysis in Kendari, Indonesia

Hasmia Naningsih[1], Melania Asi[1], Yustiari[1], La Banudi[1], Nina Primasari[2]

[1]Department of Midwifery, Poltekkes Kemenkes Kendari, Southeast Sulawesi, Indonesia
[2]Department of Midwifery, Poltekkes Kememkes Jakarta III, Jakarta, Indonesia

Corresponding Author: Hasmia Naningsih **Email:** hasmiananingsih6@gmail.com

Received: 28 January 2025 **Revised:** 20 June 2025 **Accepted:** 22 June 2025 **Available online:** May 2026
DOI: 10.55131/jphd/2026/240202

ABSTRACT

Quality of life (QoL) of people living with HIV/AIDS (PLWHA) is a multifaceted issue involving physical, psychological, social, and environmental factors. Although antiretroviral therapy (ART) has improved life expectancy and health outcomes, significant challenges remain for PLWHA, including stigma, social support, and economic status. This study aimed to determine a clinical model of variables influencing QoL of PLWHA, with the hope of providing insights for more targeted interventions. The study design was cross-sectional analytic, conducted at a Voluntary Counseling and Testing (VCT) Clinic in Kendari, Indonesia, from April 2024 to January 2025. The sample consisted of 451 HIV/AIDS patients receiving ART therapy. Data were collected through a questionnaire that had been tested for reliability (Cronbach's alpha = 0.972) and analyzed using descriptive analysis, chi-square test, and logistic regression. Results showed that stigma, social support, spirituality, duration of infection, adherence to ART therapy, and access to health services significantly influenced QoL. Stigma and social support emerged as the main predictors of QoL, with adherence to ART therapy also contributing positively. These findings demonstrate the importance of psychosocial factors in determining QoL of PLWHA. Although stigma can be a barrier, social support and adherence to treatment can improve QoL. Longer duration of infection was associated with decreased QoL, suggesting the need for special attention to individuals who have been infected with HIV for longer periods. Interventions that focus on reducing stigma and increasing social support are essential for improving the QoL of PLWHA. Further research is needed to explore the role of personal resilience in this context. It is recommended to implement comprehensive psychosocial intervention programs aimed at reducing stigma and enhancing social support for people living with HIV/AIDS.

Keywords:
Quality of Life (QoL), HIV/AIDS, Factors, PLWHA, Modelling

Citation:
Melania Asi, Yustiari, La Banudi1, Nina Primasari. Factors affecting quality of life in HIV/AIDS patients: clinical model analysis in Kendari, Indonesia. J Public Hlth Dev. 2026;24(2):15-32 (https://doi.org/10.55131/jphd/2026/240202)

INTRODUCTION

The quality of life (QoL) of individuals living with HIV/AIDS (PLWHA) is a complex and multifaceted issue that has garnered significant attention in recent years. This complexity arises from the interplay of various factors, including physical health, psychological well-being, social dynamics, and environmental conditions. The advent of antiretroviral therapy "ART" has dramatically improved the life expectancy and health outcomes for many individuals living with HIV/AIDS. However, significant barriers remain that can impede their overall quality of life, such as stigma, social support, and economic status.[1]

Stigma remains one of the most formidable challenges faced by PLWHA, influencing their mental health and social interactions. Research indicates that individuals who experience high levels of stigma often report poorer quality of life due to feelings of shame, isolation, and discrimination.[2,3] This stigma can manifest in various forms, including self-stigma, where individuals internalize negative societal attitudes, and public stigma, which encompasses the broader societal discrimination against those living with HIV/AIDS. The impact of stigma is profound, as it not only affects mental health but also discourages individuals from seeking necessary medical care and support.[2]

Social support is another critical factor influencing the QoL of PLWHA. Studies have consistently shown that robust social support networks can mitigate the adverse effects of stigma and enhance the overall well-being of individuals living with HIV/AIDS.[1,4,5] Support from family, friends, and community organizations can provide emotional reassurance and practical assistance, which are vital for individuals navigating the complexities of living with a chronic illness. Moreover, social support can foster resilience, enabling PLWHA to cope better with the challenges posed by their condition.[4,6]

The psychological aspects of living with HIV/AIDS cannot be overlooked, as mental health significantly impacts overall quality of life. Depression and anxiety are prevalent among PLWHA, often exacerbated by the stigma associated with the disease.[7] The relationship between mental health and QoL is well-documented, with studies indicating that individuals suffering from depressive disorders report significantly lower quality of life scores across various domains.[7]

Adherence to ART is another significant factor influencing the QoL of PLWHA. Studies have shown that consistent adherence to ART not only improves health outcomes but also enhances the overall quality of life.[7,8] However, barriers to adherence, such as medication side effects, complex dosing regimens, and lack of social support, can hinder individuals from maintaining their treatment schedules.[8,9] Therefore, healthcare providers must prioritize strategies that promote adherence, including education, counseling, and support groups, to improve the QoL of PLWHA. Access to health services is also a critical determinant of QoL among PLWHA. In many regions, including Kendari, disparities in healthcare access can significantly affect the quality of life for individuals living with HIV/AIDS.[9]

The complexities surrounding the quality of life (QoL) of people living with HIV/AIDS (PLWHA) are significantly influenced by various interconnected factors. Key determinants include physical health, psychological well-being, social support, and stigma, which collectively shape health outcomes for PLWHA. Research indicates that stigma is a major barrier to QoL, contributing to mental health challenges such as depression and anxiety, thus negatively impacting social interactions and treatment adherence.[10,11] Furthermore, robust social support

networks significantly enhance QoL by mitigating the effects of stigma and improving treatment outcomes.[12–14]

Moreover, adherence to antiretroviral therapy (ART) remains crucial for improving overall health and QoL among PLWHA. Studies have shown that consistent ART adherence is associated with higher QoL ratings.[15] Additionally, the duration of HIV infection has been linked to declining QoL, indicating the need for tailored interventions for those with prolonged infections.[16] Despite existing interventions, a gap persists in the understanding of a clinical model of variables influencing QoL of PLWHA, with the hope of providing insights for more targeted interventions. The study included a diverse range of participants to gain a comprehensive understanding of the factors influencing the quality of life among individuals living with HIV/AIDS.

The novelty of this study lies in the clinical analysis model of variables that affect the quality of life (QoL) in HIV/AIDS patients in Kendari, Indonesia, which was conducted through a cross-sectional analytical design approach. Previous studies have generally focused more on individual factors such as stigma and social support, without formulating systematic relationships that shape overall QoL.

METHODS

Research Design

This study employed a cross-sectional analytical design that is particularly suitable for examining the relationships between various independent and dependent variables at a single point in time. The investigation was conducted between April 2024 and January 2025 at the Voluntary Counseling and Testing (VCT) Clinic of Kendari City Regional General Hospital, located in Kendari City, Indonesia. The cross-sectional nature of the research allows for the collection of data that reflect the current status of the participants regarding their QoL as individuals living with HIV/AIDS. This design is advantageous as it facilitates the simultaneous assessment of multiple variables, enabling a comprehensive understanding of the factors influencing the QoL of PLWHA.

Sampling

The target population for this study consisted of all HIV/AIDS patients residing in Kendari City who were receiving treatment at the VCT Clinic of Kendari City Hospital. The total population consisted of 451 individuals, and due to the nature of the study being a survey with a limited population, the researcher chose to include the entire population as the sample. This decision to use the total population rather than a subset enhances the representativeness of the findings and allows for a more comprehensive analysis of the factors affecting QoL in PLWHA.

The inclusion criteria for participation were clearly defined to ensure that the sample accurately reflected the population of interest. Participants had to be registered patients undergoing ART therapy at the VCT Clinic, reside in Kendari City, and provide informed consent to participate in the study. This approach ensured that the sample was not only relevant but also ethically sound, as participants were fully aware of their involvement in the research. Conversely, exclusion criteria were established to maintain the integrity of the data-collection process. Individuals who refused to participate or were unable to do so due to circumstances beyond their control were excluded from the study. This rigorous sampling methodology aimed to minimize

bias and enhance the validity of the research findings.

Variables

This study identified several independent variables hypothesized to influence the dependent variable, which was the QoL of individuals living with HIV/AIDS. The independent variables were stigma, social support, spirituality, length of infection, adherence to ART therapy, and health service accessibility. Each of these variables was selected based on existing literature that suggests their potential impact on the QoL of PLWHA.

Data Collection

Data were collected using a meticulously developed self-administered questionnaire based on a comprehensive literature review. QoL was classified as Poor if the score falls between 4 and 9.9, and Good if it falls between 10 and 20. The questionnaire was designed to capture a wide range of information, including sociodemographic characteristics, stigma, social support, duration of infection, adherence to ART therapy, and access to health services. This multifaceted approach allowed for a thorough exploration of the various factors influencing the QoL of PLWHA.

The reliability of the questionnaire was assessed using Cronbach's alpha, which yielded a value of 0.972, indicating a high internal consistency among the items. This suggests that the questionnaire is a robust tool for measuring the constructs of interest, thus enhancing the credibility of the data collected.

Participants were provided with clear instructions on how to complete the questionnaire, ensuring that they understood the purpose of the study and the importance of their honest responses. The self-administered nature of the questionnaire also allowed participants to complete it at their own pace, which may have contributed to more thoughtful and accurate responses. Overall, the data collection process was designed to be comprehensive and respectful of the participants' experiences, thereby maximizing the quality of the data obtained.

Data processing and analysis

Once the data were collected, a series of processing steps was performed to transform the raw data into meaningful information. Data processing involved cleaning the dataset to identify and address any inconsistencies or missing values, thereby ensuring that the analysis was based on accurate and reliable information. The data were then analyzed using appropriate statistical methods with the aid of a computer software designed for statistical analysis. A descriptive analysis was conducted to provide an overview of the collected data, summarizing the key characteristics of the sample population and the distribution of responses across various variables. This initial analysis allowed for the identification of trends and patterns within the data, which informed subsequent bivariate and multivariate analyses. For bivariate analysis, the chi-squared test was employed to examine the relationship between each independent variable and the dependent variable, providing insights into the potential associations that warrant further exploration. In the multivariate analysis, a linear regression test was used to identify the factors that had the most significant impact on the QoL of patients with HIV/AIDS. This approach allowed for the simultaneous examination of multiple independent variables, controlling for potential confounding factors. Each independent variable was compared with the dependent variable using a bivariate approach, and variables that demonstrated a p-value of less than 0.25 in the bivariate tests were included in the multivariate model. The final model was refined by retaining variables with a p-value of less

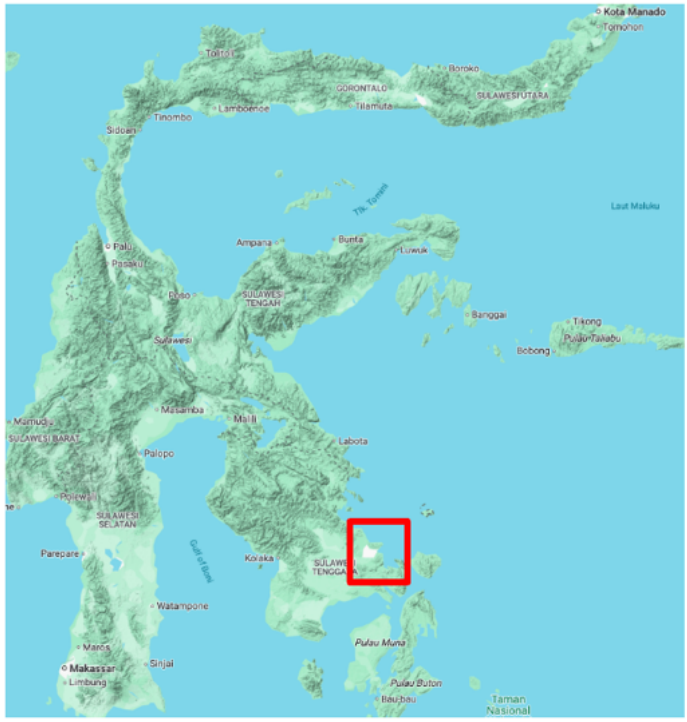
than 0.05, thereby ensuring that only statistically significant factors were considered in the analysis. The process of variable selection was conducted systematically, starting with the variables that exhibited the largest p-values and gradually eliminating those that did not meet the significance threshold. Additionally, the linearity of numerical variables was assessed to determine whether they should be treated as categorical or continuous variables in the analysis. After establishing a model that included important variables, the final step involved examining potential interactions among the variables to gain a deeper understanding of their relationships and their effects on QoL.

Location

This research was conducted in Kendari City, Southeast Sulawesi Province, Indonesia. The exact location is depicted in https://maps.app.goo.gl/fupPnjsQYyHJKUAL9. Kendari City is located on the Southeast peninsula of Sulawesi Island. Its land area is mostly on the mainland, surrounding Kendari Bay, and there is one island, namely Bungkutoko Island, geographically located in the southern part of the equator, between 3º54'30" - 4º3'11" South Latitude and 122º23' - 122º39' East Longitude. Coordinates are 3.9675°S 122.5947°E. More details can be seen in Figure 1 below.



A. Indonesia



B. Sulawesi Islands



C. City of Kendari

Figure 1. Research Location

RESULTS

Table 1 presents the frequency distribution of respondents based on various demographic and social variables. Of the total 451 respondents, 59% were male and 41% were female. In terms of age, the majority of respondents were aged 18-25 years (32%), followed by 26-33 years (31%). Marital status showed that 63% of respondents were single, while 37% were married. In terms of education, 59% of respondents had completed their education from elementary school to high school, while 41% had a bachelor's degree. The respondents' quality of life was divided into 45% who felt their life was bad and 55% who felt good. Regarding stigma, 52% experienced negative stigma. Social support showed that 52% of respondents felt they had good support. In terms of spirituality, 55% of respondents felt good, and regarding the duration of infection, 53% had an infection for 32 months or more. Adherence to ART therapy showed that 56% complied, while access to health services was stated as good by 58% of respondents.

Table 1. Frequency distribution of respondents

Variables	n	%
Sex		
Male	268	59
Female	183	41
Total	451	100
Age Group (Years)		
18-25	146	32
26-33	140	31
34-41	88	20
42–49	77	17
Total	451	100
Status		
Married	165	37
Unmarried	286	63
Total	451	100
Education		
Elementary to senior high school	265	59
Bachelor	186	41
Total	451	100
Quality of Life		
Poor	203	45
Good	248	55
Total	451	100
Stigma		
Negative	233	52
Positive	218	48
Total	451	100
Social Support		
Poor	217	48
Good	234	52
Total	451	100

Variables	n	%
Spirituality		
Poor	203	45
Good	248	55
Total	451	100
Duration of infection		
< 32 Month	212	47
≥32 Month	239	53
Total	451	100
Adherence to ART Therapy		
Disobeyed	198	44
Obeyed	253	56
Total	451	100
Healthcare Access		
Poor	191	42
Good	260	58
Total	451	100

Table 2 presents data on the relationship between certain variables and QoL in PWHA. There were six variables analyzed: Spirituality, Duration of Infection, Adherence to ART Therapy, Access to Health, Stigma, and Social Support. From the data, it can be seen that PWHA with good spirituality have a better proportion of QoL (59%) compared to those with poor spirituality (41%). Duration of infection shows that those with infection for ≥32 months tend to have worse QoL (56%) compared to those infected for less than 32 months (50%). Adherence to ART therapy also has an effect, where those who adhere to therapy show better QoL (61%) compared to those who do not (39%). Good access to health services is associated with better QoL (56%), while experiencing negative stigma has an impact on worse QoL (57%). Finally, good social support also contributes to better QoL (57%). These findings indicate the importance of social and health factors in influencing the quality of life of PWHA.

Table 2. Associations between model variables and QoL of PWHA

Variables	PWHA Quality of Life				Total	
	Poor		Good			
	n	%	n	%	n	%
Spirituality						
Poor	101	50	102	41	203	45
Good	102	50	146	59	248	55
Total	203	100	248	100	451	100
Duration of Infection						
< 32 Month	89	44	123	50	212	47
≥32 Month	114	56	125	50	239	53
Total	203	100	248	100	451	100
Compliance with ART therapy						
Disobeyed	102	50	96	39	198	44
Obeyed	101	50	152	61	253	56
Total	203	100	248	100	451	100

Variables	PWHA Quality of Life				Total	
	Poor		Good			
	n	%	n	%	n	%
Healthcare Access						
Good	122	60	138	56	260	58%
Poor	81	40	110	44	191	42%
Total	203	100	248	100	451	100
Stigma						
Negative	116	57	117	47	233	52
Positive	87	43	131	53	218	48
Total	203	100%	248	100	451	100
Social support						
Poor	110	54	107	43	217	48
Good	93	46	141	57	234	52
Total	203	100	248	100	451	100

Table 3 presents candidate variables that influence the QoL of PWHA. Each variable is measured by a P value, which indicates the statistical significance of the relationship between the variable and QoL. The variables stigma, social support, and adherence to ART therapy showed highly significant P values (0.000), indicating that these three factors have a strong influence on the QoL of PWHA. In addition, spirituality and duration of infection also showed significance (p = 0.009 and p = 0.008, respectively), although with a lower level of significance compared to the previous variables. In contrast, access to health services did not show significance (p = 0.318), indicating that this variable did not significantly influence the QoL of PWHA in the context studied. These findings highlight the importance of psychosocial factors in improving the QoL of PWHA.

Table 3. Multivariate Candidate Variables on QoL of PWHA

Variables	p value
Stigma	0.000*
Social Support	0.000*
Spirituality	0.009*
Duration of infection	0.008*
Adherence to ART Therapy	0.000*
Healthcare Access	0.318

* Statistically significant

Table 4 presents the results of logistic regression analysis evaluating variables affecting QoL in PWHA. Model 1 and Model 2 show coefficients (B), P values, odds ratios (ORs), and 95% confidence intervals (CIs) for each variable. In Model 1, stigma, social support, duration of infection, and adherence to ART therapy showed significant associations with QoL. Stigma and social support had ORs greater than 2, indicating that increases in these variables were associated with improved QoL. In contrast, duration of infection had an OR less than 1, indicating that the longer the infection, the lower the QoL. Model 2 added persistence variables and showed similar results for social support and adherence to ART therapy, with persistence also showing a significant

positive association. Duration of infection again showed a negative impact on QoL. These findings emphasize the importance of social support and adherence to therapy in improving QoL in PWHA. Relevant references may include studies on stigma, social support, and the impact of ART therapy on QoL in PWHA

.

Table 4. Modeling

Model 1						Model 2					
Variables	**B**	**P value**	**OR**	**95% CI**		**Variables**	**B**	**P value**	**OR**	**95% CI**	
				Lower	**Upper**					**Lower**	**Upper**
Stigma	0.936	0.033	2,550	1,078	6,032	Stubbornness	0.999	0.021	2,717	1,078	6,032
Support Social	0.922	0.021	2,515	1,149	5,501	Support Social	0.933	0.019	2,541	1,149	5,501
Duration of Infection	0.886	0.037	0.421	0.179	0.948	Duration of Infection	-0.960	0.021	0.383	0.170	0.864
Compliance ART therapy	0.910	0.027	2,484	1.107	5,571	Compliance ART therapy	0.939	0.022	2,557	1.107	5,571
Spirituality	0.346	0.393	1,414	0.638	3,130						

Logistic Regression

Comparison with the research of Zhong H, 2023 [17] and Adewuyi B, 2023 [18] published in Frontiers in Public Health and African Journal of Clinical and Experimental Microbiology

Table 5. the results comparison from Adewuyi B, 2023 [18] research

Variables	**Mean (± SE) quality of life scores**	**95% CI**	**Variables**	**Median**	**Mean**
Physical Health Domain	15.83±0.14	15.55 - 16.11	Physical health summary score	55.1 (49.9–58.7)	53.6 (6.8)
Psychological Health Domain	15.07±0.12	14.93 - 15.29	Mental health summary score	53.0 (46.9–57.0)	51.3 (7.6)
Level of Independence Domain	14.95±0.13	14.69 - 15.21	General health perception	60.0 (45.0–75.0)	61.5 (21.3)
Social Relationship Domain	13.49±0.14	13.21 - 13.76	Physical functioning	91.7 (83.3–100.0)	87.2 (16.9)
Environment Domain	13.45±0.10	13.25 - 13.65	Role functioning	100.0 (100.0–100.0)	87.3 (29.3)
Spiritual/Religion/Personal Beliefs Domain	16.33±0.18	15.97 - 16.69	Social functioning	100.0 (60.0–100.0)	82.9 (23.8)
			Cognitive functioning	80.0 (70.0–92.5)	79.7 (16.0)
			Pain	88.8 (77.8–100.0)	84.1 (17.5)

Variables	Mean (± SE) quality of life scores	95% CI

Source: Adewuyi B, 2023 [18]

Variables	Median	Mean
Energy/fatigue	65.0 (60.0–75.0)	64.8 (11.7)
Health distress	95.0 (75.0–100.0)	84.2 (20.4)

Source: Zhong H, 2023 [17]

DISCUSSION

The QoL of PWHA is influenced by several factors. Key variables, such as spirituality, duration of infection, adherence to ART, healthcare access, stigma, and social support have been shown to significantly impact QoL outcomes. For example, individuals with strong spirituality reported a higher percentage of good QoL (59%) compared to those with poor spirituality (41%). This finding aligns with previous research that highlights the role of spirituality in enhancing mental health and overall well-being among PWHA, suggesting that spiritual practices can provide emotional support and a sense of purpose, which is crucial for coping with chronic illnesses.[19,20]

Adherence to ART therapy is another critical determinant of the QoL. The data indicated that 61% of individuals who adhered to their therapy reported a good QoL, in contrast to only 39% of those who did not comply with their treatment regimen. This correlation underscores the importance of medication adherence in effectively managing HIV infection and improving health outcomes. Studies have consistently shown that non-adherence to ART therapy can lead to viral load increases, which in turn can exacerbate health complications and diminish QoL.[21,22] Furthermore, healthcare access plays a pivotal role, with 58% of individuals reporting good QoL when they have adequate access to healthcare services. This finding is consistent with the literature that emphasizes the necessity of accessible healthcare in managing chronic conditions, particularly in populations vulnerable to health disparities.[23]

Stigma presents a significant barrier to achieving optimal QoL for PWHA. The data revealed that individuals experiencing negative stigma reported a higher percentage of good QoL (53%) than did those experiencing positive stigma (47%). This counterintuitive finding may reflect the complex interplay between stigma and self-perception among PWHA. Research indicates that while stigma can lead to social isolation and mental health challenges, some individuals may develop resilience and coping strategies that mitigate the negative effects of stigma.[24] Moreover, the experience of stigma has been linked to lower health-related QoL, as it can lead to feelings of shame, depression, and anxiety, which adversely affect overall well-being.[25]

Social support is another critical factor that influences the QoL of PWHA. The data indicated that individuals with good social support reported a higher percentage of good QoL (57%) than those with poor social support (43%). This finding is supported by numerous studies that highlight the protective role of social support in enhancing mental health and coping mechanisms in individuals with chronic illnesses. Social networks can provide emotional support, practical assistance, and a sense of belonging, all of

which are vital for improving QoL among PWHA.[26] One of the most important defences against the psychological strains associated with HIV/AIDS is social support. Adequate social support has been shown in numerous studies to significantly reduce psychological burdens and improve mental health and self-esteem in PLWHA. To improve QoL outcomes for PLWHA, Susmiati and Jayani (2020), for example, emphasise the importance of social support in fostering a positive mental state and increasing self-confidence, both of which are necessary for following treatment plans.[27] Similarly, Mengistu et al. confirm that among people receiving ART, family support has a positive correlation with QoL ratings, highlighting the beneficial effects of a strong support network on health outcomes.[28]

The duration of infection also appears to influence the QoL. The data showed that individuals with an infection duration of less than 32 months reported a higher percentage of good QoL (56%) than those with an infection duration of 32 months or more (50%). This finding suggests that newly diagnosed individuals may experience a different set of challenges and coping mechanisms than those who have lived with the infection for a longer period. Long-term survivors may face unique health challenges, including comorbidities and the cumulative effects of stigma and discrimination, which can impact their QoL.[29,30] It has also been demonstrated that the length of the infection has a major impact on QoL outcomes. Extended periods of infection can result in exacerbated health problems that impact mental and physical health. For example, in a recent study, researchers discovered a significant correlation between longer infection durations and lower QoL outcomes among individuals living with HIV/AIDS.[31] According to this relationship, people may face more stigma, health issues, and psychological stress as they deal with the challenges of living with HIV/AIDS over time. These factors can all lower a person's quality of life.

The analysis of the logistic regression models reveals significant insights into the factors influencing the quality of life among individuals living with HIV/AIDS. The first model identified stigma and social support as critical predictors of an improved quality of life, with both factors exhibiting strong positive associations. This finding aligns with findings from Wang et al., who emphasize the role of social support in enhancing the quality of life for individuals with HIV/AIDS, suggesting that supportive relationships can mitigate stress and improve coping mechanisms.[32]

Conversely, the duration of infection was negatively correlated with quality of life, indicating that a longer duration of infection is associated with a decline in quality of life. This finding is corroborated by research indicating that prolonged exposure to HIV can lead to increased physical and psychological burdens, ultimately diminishing life quality.[33] Additionally, compliance with antiretroviral (ART) therapy emerged as a significant positive predictor, reinforcing the notion that adherence to treatment is crucial for enhancing quality of life among those living with HIV/AIDS. The importance of ART adherence is further supported by studies highlighting its role in improving health outcomes and quality of life for individuals with HIV.[34,35] One important factor influencing PLWHA's quality of life is adherence to ART. According to Junaid et al. (2021), inadequate ART adherence can worsen mental health conditions and accelerate the course of the disease, which can lead to a reduction in overall quality of life.[36] HIV is now a more manageable chronic illness thanks to effective treatment with antiretroviral therapy (ART). However, adherence is still a major problem that is made worse by a number of psychosocial factors, such as stigma and depression.

According to Hoang et al., the stigma attached to HIV can reduce treatment adherence, which is linked to diminished quality of life outcomes.[37] The physiological markers of health, especially the preservation of CD4 cell counts, which are essential for the immune system's ability to fight off opportunistic infections, also benefit from adherence.[38]

In the second model, stubbornness replaced stigma as a significant predictor, suggesting that personal resilience or determination may play a pivotal role in enhancing quality of life. This shift indicates that while stigma is a critical factor, individual traits such as stubbornness can also significantly influence quality of life outcomes. Social support remained a consistent predictor across both models, emphasizing the importance of social support in the lives of HIV/AIDS patients. The negative association with the duration of infection persisted in this model, further underscoring the detrimental effects of prolonged infection on the quality of life. Compliance with ART therapy showed a positive relationship, reinforcing the critical role of adherence to treatment in improving health outcomes. Perceived and internalized stigma continues to be a powerful obstacle that significantly impairs quality of life. Social and psychological well-being are just two of the many aspects of health that are negatively impacted by HIV-related stigma. Research shows that people experiencing a high level of stigma frequently have lower quality of life (QoL) scores and higher rates of mental health conditions like anxiety and depression.[39] In order to combat this stigma, structural interventions are needed, including education and awareness campaigns as well as individual support strategies meant to promote community acceptance and well-being.[40]

In the context of HIV/AIDS management, the interplay between individual traits, social support, and medical adherence significantly influences the quality of life of affected individuals. Recent findings suggest that personal resilience and determination are important factors for enhancing the quality of life of those living with HIV/AIDS. However, the specific claim that "stubbornness has emerged as a significant predictor of QoL outcomes, replacing stigma," lacks direct support from the cited references and should be treated with caution. The statistical significance of personal traits in relation to QoL outcomes requires further validation from robust studies.[41,42] Moreover, social support continues to play a vital role in different QoL assessment models. The consistent predictive status of social support highlights its enduring importance in the lives of HIV/AIDS patients. Social support can manifest in various forms, including emotional encouragement, practical assistance, and informational resources, all of which contribute to better health outcomes and enhanced quality of life.[43,44] The presence of a supportive network can mitigate the negative effects of stigma and promote adherence to treatment regimens, which is crucial for managing HIV effectively.[45,46]

Interestingly, spirituality did not demonstrate a significant effect in either model, suggesting that, while it may be a relevant factor for some individuals, it does not universally impact quality of life in the context of HIV/AIDS. These findings align with mixed results in the literature regarding the role of spirituality in health outcomes for individuals with chronic illnesses.[47] The overall findings from both models highlight the multifaceted nature of the determinants of quality of life in this population, where social dynamics, personal traits, and treatment adherence converge to influence health outcomes.

The implications of these findings are profound as they suggest that interventions aimed at reducing stigma and enhancing social support could significantly improve the quality of life of individuals living with HIV/AIDS. Furthermore, fostering personal resilience through psychological support and counseling may also play a crucial role in enhancing the quality of life. The consistent importance of ART adherence underscores the need for ongoing education and support for individuals on treatment, as well as the necessity of addressing barriers to adherence, which can include stigma, lack of social support, and personal challenges.[43,48]

CONCLUSION

The results showed that the QoL of PWHA was influenced by multiple factors, including stigma, social support, adherence to ART therapy, and duration of infection. Stigma and social support were shown to be significant predictors that positively impacted QoL, with individuals experiencing lower stigma and good social support being more likely to report good QoL. Conversely, a longer duration of infection was negatively correlated with QoL, suggesting that individuals who have been infected for longer are more likely to experience decreased QoL. Adherence to ART therapy also contributed significantly to improved QoL. These findings highlight the importance of interventions aimed at reducing stigma and increasing social support, as well as the need for ongoing education and support to improve adherence to therapy. Although spirituality did not show a significant effect in the analysis model, other social and psychological factors remain key in improving QoL for PWHA. Further research is needed to explore the complex relationships between these factors and QoL in the context of HIV/AIDS.

ETHICAL CONSIDERATION

Ethical considerations were paramount throughout the research process, and the study was approved by the Ethical Commission of Poltekkes Kemenkes Kendari under the reference number DP.04.03/F.XXXVI.11/019/2024. This ethics approval was received on April 17, 2024.

AUTHOR CONTRIBUTION FOLLOWING CREDIT

HN: Research Design, Data Collection, Data Analysis, Interpretation, Revising, Publication Approval

MA: Research Design, Data Collection, Interpretation, Revising, Publication Approval

YY: Research Design, Data Collection, Publication Approval

LB: Research Design, Data Collection, Publication Approval

NP: Research Design, Revising, Publication Approval

CONFLICT OF INTEREST

The authors state that there is no conflict of interest.

REFERENCES

1. Purwanto E, Sari M, Alifatin A, Herlianita R. Social Support and Quality of Life Patients with Acquired Immune Deficiency Syndrome. KnE Medicine. 2023;2023(3):218–30.
2. Chaudhary S, Kakchapati S. Social stigma, discrimination, and their determinants among people living with HIV and AIDS in Sudurpashchim Province, Nepal. HIV & AIDS Review. 2022;21(3):230–8.
3. Ebrahimi Kalan M, Han J, Ben Taleb Z, Fennie KP, Asghari Jafarabadi M, Dastoorpoor M, et al.Quality Of Life

And Stigma Among People Living With HIV/AIDS In Iran. HIV/AIDS - Research and Palliative Care. 2019;11(12):287–98.
4. Susmiati S, Jayani I. Profile of Social Support on The Quality of Life of People With HIV/AIDS (PLWHA). STRADA Jurnal Ilmiah Kesehatan. 2020;9(2):1353–8.
5. Xie F, Zheng H, Huang L, Yuan Z, Lu Y. Social Capital Associated with Quality of Life among People Living with HIV/AIDS in Nanchang, China. Int J Environ Res Public Health. 2019;16(2):1–12.
6. Irfantoro T, Rukmi DK. HIV Disclosure and Quality of Life in People Living with HIV/AIDS in Yogyakarta. IJNP (Indonesian Journal of Nursing Practices). 2020;4(2):50–8.
7. Sari PI, Martawinarti RN, Lataima NS, Berhimpong VM. The Quality of Life of Patients with HIV/AIDS Undergoing Antiretroviral Therapy: A Systematic Review. Jurnal Ners. 2019;14(3):50–4.
8. Scott-Sheldon LAJ, Balletto BL, Donahue ML, Feulner MM, Cruess DG, Salmoirago-Blotcher E, et al. Mindfulness-Based Interventions for Adults Living with HIV/AIDS: A Systematic Review and Meta-analysis. AIDS Behav. 2019;23(1):60–75.
9. Salma Iklama L, Nursalam N, Ketut Alit Armini N. Relationship between Financial Factors and Access to Health Care and Quality of Life for HIV / AIDS Patients. Fundamental and Management Nursing Journal. 2021;4(1):1–6.
10. Milewska-Buzun M, Cybulski M, Baranowska A, Kózka M, Paradowska-Stankiewicz I. Quality of Life in HIV-Positive People in Poland Treated in the City of Bialystok: A Cross-Sectional Study. J Clin Med. 2023;12(17):1–16.
11. Nasir A, Yusuf A, Makhfudli, Harianto S, Okviasanti F, Kartini Y. Living experiences of people living with HIV-AIDS from the client's perspective in nurse-client interaction in Indonesia: A qualitative study. PLoS One. 2023;18(2):1–14.
12. Kieu PT, Vuong NL, Dung D Van. Validation of Multidimensional Scale of Perceived Social Support (MSPSS) in Vietnamese Among People Living with HIV/AIDS. AIDS Behav. 2023;27(8):2488–96.
13. Marziali ME, McLinden T, Card KG, Closson K, Wang L, Trigg J, et al. Social Isolation and Mortality Among People Living with HIV in British Columbia, Canada. AIDS Behav. 2021;25(2):377–88.
14. Zaffer I, Kumari R, Gupta U, Langer B, Gupta RK, Bala J. The Role of Perceived Stigma and Social Support in Predicting the Quality of Life in Adult Patients living with HIV/AIDS attending ART centre in a tertiary care hospital in North India. Indian J Community Health. 2024;36(4):522–30.
15. Miltz AR, Sewell J, Nakagawa F, Rein SM, Sherr L, Rodger A, et al. Evidence from high-income countries on the effectiveness of psychosocial interventions to improve mental health, wellbeing and quality of life for adults living with HIV: a systematic review and meta-analysis. J Int AIDS Soc. 2025;28(4):1–36.
16. Misutarno M, Nursalam N, Sukartini T, Khamida K, Hasina SN. The Effectiveness of Peer Group Support to Increase Health Related Quality of Life among Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome Patients: A Systematic Review. Open Access Maced J Med Sci. 2022;10(F):129–35.

17. Zhong H, Wei F, Song Y, Chen H, Ni Z. Health-related quality of life and associated factors among people living with HIV/AIDS in Sichuan, China: A cross-sectional study. Front Public Health. 2023;11(3):1–12.
18. Adewuyi BT, Adewuyi GM. Quality of life of people living with HIV and AIDS attending Irrua Specialist Teaching Hospital, Edo State, Nigeria. African Journal of Clinical and Experimental Microbiology. 2023;24(1):32–44.
19. Davis CW, Hook JN, Hodge AS, DeBlaere C, Davis DE, Van Tongeren DR, et al. Religious relief: Exploring the role of religion and spirituality among a broad range of people living with HIV. Spirituality in Clinical Practice. 2023;10(2):168–83.
20. Ghazalsaflou mehdi. The Role of Spirituality in Coping with Chronic Illness. Journal of Personality and Psychosomatic Research. 2023;1(4):38–45.
21. Hussen Tale A, Tegegne AS, Belay DB. Predictors of Viral Load and Medication Adherence Among HIV-Positive Adults Under Treatment at Felege-Hiwot Comprehensive Specialized Hospital, North-West, Ethiopia. HIV/AIDS - Research and Palliative Care. 2023;15(8):477–89.
22. Muse AI, Osman MO, Ibrahim AM, Wedajo GT, Abdi MM, Roble AK. Non-adherence to antiretroviral therapy and associated factors among adult HIV patients in Somali region public Hospitals, eastern Ethiopia. Int J Afr Nurs Sci. 2023;19(11):1–8.
23. Dawe J, Cassano D, Keane R, Ruth S, Wilkinson AL, Elsum I, et al. Quality of life among people living with <scp>HIV</scp> aged 50 years and over in Australia: Identifying opportunities to support better ageing. HIV Med. 2023;24(12):1253–67.
24. van der Kooij YL, Kupková A, den Daas C, van den Berk GEL, Kleene MJT, Jansen HSE, et al. Role of Self-Stigma in Pathways from HIV-Related Stigma to Quality of Life Among People Living with HIV. AIDS Patient Care STDS. 2021;35(6):231–8.
25. Hoang VTH, Pham HT, Nguyen LTP, Tran NA, Le-Thi VQT. The relationship between HIV-related stigma and quality of life among HIV infected outpatients: A cross-sectional study in Vietnam. J Public Health Res. 2024;13(1):1–9.
26. Acoba EF. Social support and mental health: the mediating role of perceived stress. Front Psychol. 2024;15(2):1–12.
27. Susmiati S, Jayani I. Profile of Social Support on The Quality of Life of People With HIV/AIDS (PLWHA). STRADA Jurnal Ilmiah Kesehatan. 2020;9(2):1353–8.
28. Mengistu N, Hareru HE, Shumye S, Yimer S, Sisay D, Kaso AW, et al. Health related quality of life and its association with social support among people living with HIV/AIDS receiving antiretroviral therapy in Ethiopia: a systematic review and meta-analysis. Health Qual Life Outcomes. 2022;20(1):1–8.
29. Asrina A, Ikhtiar M, Idris FP, Adam A, Alim A. Community stigma and discrimination against the incidence of HIV and AIDS. J Med Life. 2023;16(9):1327–34.
30. Faidas M, Stockton MA, Mphonda SM, Sansbury G, Hedrick H, Devadas J, et al. Stigma and discrimination faced by adolescents living with HIV and experiencing depression in Malawi. BMC Global and Public Health. 2024;2(1):1–15.
31. Sukma KA, Sunarsih S, Rahmawati R. Relationship between Spirituality and Duration of Infection with the Quality of Life in People with HIV/AIDS. Waluya The International Science of Health Journal. 2023;2(3):114–8.

32. Wang R, Zheng F, Cao G, Goldsamt LA, Shen Y, Zhang C, et al. The relationship between social support and depression among HIV-positive men who have sex with men in China: the chain mediating role of psychological flexibility and hope. Front Public Health. 2023;11(11):1–12.
33. Auliannissa S, Bustamam N, Ningsih SR. The Adherence to Fixed-Dose Combination Antiretroviral Therapy and Viral Load in HIV Patients. Mutiara Medika: Jurnal Kedokteran dan Kesehatan. 2020;20(1):21–6.
34. Azzman N, Gill MSA, Hassan SS, Christ F, Debyser Z, Mohamed WAS, et al. Pharmacological advances in anti-retroviral therapy for human immunodeficiency virus-1 infection: A comprehensive review. Rev Med Virol. 2024;34(2):1–28.
35. Ilmaskal R, Rahma G, Gusdiansyah E. Years of potential life lost in HIV/AIDS patients and its determinant factor. Research, Society and Development. 2020;9(11):1–13.
36. Junaid K, Ali H, Khan AA, Khan TA, Khan AM, Khan A, et al. Prevalence and Associated Factors of Depression among Patients with HIV/AIDS in Lahore, Pakistan: Cross-Sectional Study. Psychol Res Behav Manag. 2021;14(2):77–84.
37. Hoang VTH, Pham HT, Nguyen LTP, Tran NA, Le-Thi VQT. The relationship between HIV-related stigma and quality of life among HIV infected outpatients: A cross-sectional study in Vietnam. J Public Health Res. 2024;13(1):1–9.
38. Armoon B, Higgs P, Fleury MJ, Bayat AH, Moghaddam LF, Bayani A, et al. Socio-demographic, clinical and service use determinants associated with HIV related stigma among people living with HIV/AIDS: a systematic review and meta-analysis. BMC Health Serv Res. 2021;21(1):1–20.
39. Rayanakorn A, Ong-artborirak P, Ademi Z, Chariyalertsak S. Predictors of Stigma and Health-Related Quality of Life Among People Living with HIV in Northern Thailand. AIDS Patient Care STDS. 2022;36(5):186–93.
40. Adraro W, Abeshu G, Abamecha F. Physical and psychological impact of HIV/AIDS toward youths in Southwest Ethiopia: a phenomenological study. BMC Public Health. 2024;24(1):1–9.
41. Kibichii Robert M, Mwangi A, Kibet Kerich G, Omwando Cornelious N. Modelling of Survival Time Among Adult HIV/AIDS Patients Under Antiretroviral Therapy in Moi Teaching and Referral Hospital in Kenya. International Journal of Statistical Distributions and Applications. 2021;7(2):35–47.
42. Lailiah N, Nursalam N, Indarwati R. Development of resilience model in people with human immunodeficiency virus undergoing antiretroviral therapy. International Journal of Public Health Science (IJPHS). 2024;13(3):1087–94.
43. Supriyatni N, Salim LA, Hargono A, Febriyanti F. Antiretroviral medication adherence for people with HIV/AIDS. J Public Health Afr. 2023;14(7):1–7.
44. Abimiku A, Ramadhani HO, Moloney M, Stafford KA, Chang JC, Patel HK, et al. Factors associated with viral suppression among adults living with <scp>HIV</scp> on antiretroviral therapy in Nigeria: Analysis of a population-based survey, 2018. HIV Med. 2023;24(7):827–37.
45. Yosefin Beni Purbo Utami, Baharika Suci Dwi Aningsih, Lorensia Panselina Widowati, Eviyani Margaretha Manungkalit. Determinants of anti-

retroviral consumption adherence in people living with HIV/AIDS in the sub-district of Mejobo, Kudus, Central Java, Indonesia. GSC Advanced Research and Reviews. 2024;18(2): 067–71.
46. Olugbenga IA. Determinants of HIV Treatment Adherence in Ethnically Diverse and Economically Disadvantaged Patients in a Tertiary Hospital, Nigeria. TEXILA INTERNATIONAL JOURNAL OF PUBLIC HEALTH. 2021;9(2):358–67.
47. Yuindartanto A, Hidayati AN, Indramaya DM, Listiawan MY, Ervianti E, Damayanti D. Risk Factors of Syphilis and HIV/AIDS Coinfection. Berkala Ilmu Kesehatan Kulit dan Kelamin. 2022;34(2):114–9.
48. O'Grady TJ, Kaufman S, Stolz A, Styer LM, Haskin L, Suresh P, et al. Late Identification of Perinatal Transmission of HIV in an Infant at High Risk. Journal of Public Health Management & Practice. 2024;30(5): 653–6.