

Association of Comorbidities and Levels of Depression among Pre-elderly with HIV in DKI Jakarta

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ABSTRACT

Background: The presence of comorbidities in pre-elderly with HIV can worsen the disease symptoms, and disabilities, and lead to the emergence of depressive symptoms. Depression in the pre-elderly can cause a decrease in quality of life and failure to achieve successful aging. This study aims to determine the association between comorbidities and the level of depression among pre-elderly with HIV.

Method: This is an observational analytic study with a cross-sectional method using a characteristic questionnaire (age, gender, education level, occupation, economic status, and marital status), comorbidities questionnaire, and PHQ-9 questionnaire. This study used convenience sampling and obtained 161 pre-elderly respondents (45–59 years) with HIV among pre-elderly with HIV in DKI Jakarta. The data analysis was done using the Fisher Exact test using STATA.

Result: There were 161 pre-elderly with HIV, 74,16% were men, 55,28% were in Senior High School, 72,67% were working, 76,4% had low economic status, and 44,72% were not married. A total of 59,85% have one comorbid condition. There were 81,37% with physical comorbidities, including 40,82% arthritis, 38,27% hypertension, 6,63% diabetes mellitus, and 51,55% with depression including 27,95% mild depression, 16,15% moderate depression, 5,59% moderate severe depression, and 1,86% severe depression. No significant association was found between comorbidities and the levels of depression among pre-elderly with HIV ($p=0,341$). The presence of physical comorbidities in pre-elderly with HIV can affect the disease progression and its treatment. However, in this study, There is no significant association between comorbidities and the levels of depression among pre-elderly with HIV in DKI Jakarta. It is recommended that further research be conducted using in-depth interviews to explore the relationship between physical comorbidities and depression in pre-elderly with HIV.

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INTRODUCTION

The Human Immunodeficiency Virus (HIV) is a virus that infects white blood cells, leading to a decline in human immunity.(1) HIV infection remains a global health issue. According to the World Health Organization (WHO), approximately 37.7 million people globally were living with HIV in 2020.(2) In Indonesia, DKI Jakarta ranks first among provinces with the highest number of HIV cases.(3) Data from 2021 indicate that 8.1% of people with HIV in Indonesia belong to the age group of 50 years and older, highlighting the prevalence of HIV among pre-elderly and elderly populations. Antiretroviral therapy (ART) can suppress the progression of HIV, extending the average lifespan of individuals with the virus.(4–6) This also increases their susceptibility to comorbid diseases. A study by Fayssal et al. in Saudi

Arabia states that nearly half of the HIV patients studied (48.5%) had at least one comorbid condition, and 40.7% of patients older than 60 years had three or more comorbidities. Comorbid diseases are particularly prevalent among elderly people with HIV.(7) HIV infection is also associated with various psychological effects, including depression and anxiety. Among mental health issues, depression is the most common in the elderly, often reducing quality of life, impairing cognition, and increasing the risk of suicide.(8,9) Achieving successful aging requires maintaining both physical and mental health. Thus, special attention must be given to pre-elderly individuals to address risk factors and implement preventative measures that promote successful aging.

Pre-elderly with HIV who have comorbidities

and/or mental health issues may experience worsening symptoms, disability, and a reduced quality of life. Screening for physical comorbidities and mental health conditions is crucial in managing HIV, particularly in pre-elderly patients, to prevent complications and improve quality of life.

While WHO recognizes a connection between depression and physical health.(10) In Indonesia, no specific study has explored the relationship between comorbidities and depression levels in HIV patients. This study aims to investigate the association between comorbid diseases and depression levels among pre-elderly individuals with HIV.

METHOD

This study was an analytical observational study with a cross-sectional design. It was conducted at several HIV foundations in DKI Jakarta from July-August 2023. Convenience sampling was used, where respondents were selected from an accessible population that was easy to reach. The sample population in this research consisted of 161 participants, specifically pre-elderly individuals with HIV at HIV foundations in DKI Jakarta who met the inclusion criteria: aged 45–59 years and willing to participate. Ethical approval was obtained from the Faculty of Medicine and Health Ethics Committee, Atma Jaya Catholic University of Indonesia (No. 14/05/KEP-FKIKUAIJ/2023).

The independent variable in this study is comorbid disease, while the dependent variable is the level of depression. Data were collected using a respondent characteristics questionnaire, a comorbidities questionnaire, and the Patient Health Questionnaire-9 (PHQ-9). The characteristic questionnaire included items on age, gender, education level, occupation, economic status, and marital status. The comorbidities questionnaire consisted of questions regarding the selection of comorbid diseases experienced by the participants, focusing on those most prevalent in the Indonesian population. It included three items: type of comorbidity, treatment received, and the type of medication. The Indonesian version of the PHQ-9 was used to screen for depressive symptoms and assess depression severity.(11) This instrument has been validated, with a validity score of 0.87 and a reliability score of 0.885.(12) The PHQ-9 consists of nine questions where participants evaluated their feelings over the past two weeks using a 4-point Likert scale ranging from 0 to 3. Total scores ranged from 0 to 27, with classifications as follows: 0–4 (no depression), 5–9 (mild depression), 10–14 (moderate depression), 15–19 (moderately severe depression), and 20–27 (severe depression).(13)

Data were processed using Statistical Software for Data Science. The relationship between comorbidities and depression levels was analyzed using the Fisher Exact test.

RESULT AND DISCUSSION

Table 1 presents the distribution of characteristics of pre-elderly with HIV in DKI Jakarta. This study included 161 participants aged 45–59 years, with a median age of 48 years (interquartile range [IQR] = 6). The majority of the pre-elderly with HIV were employed (72.67%) and had a lower income (76.4%). Economic limitations among this group were attributed to the types of jobs held by most respondents, primarily as private employees in small companies or entrepreneurs. Additionally, a significant proportion of respondents had only attained a senior high school education (55.28%), limiting their access to well-paying jobs with wages above the DKI Jakarta minimum wage.

Table 1. Distribution of characteristics of pre-elderly with HIV in DKI Jakarta

Variables	n	%
Gender		
Male	121	75.16
Female	40	24.84
Education		
Primary School	16	9.94
Junior High School	27	16.77
Senior High School	89	55.28
Bachelor	29	18.01
Occupation		
Unemployed	44	27.33
Employed	117	72.67
Economic status		
< Provincial Minimum Wage	123	76.40
≥ Provincial Minimum Wage	38	23.60
Marital status		
Unmarried	72	44.72
Married	39	24.22
Divorced	23	14.29
Widow	27	16.77

Table 2 shows the frequency distribution of respondents based on physical comorbidities and levels of depression. Most pre-elderly with HIV had comorbidities, with arthritis being the most common condition. Physical comorbidities can arise both during and before HIV infection. The increase in physical comorbidities among pre-elderly individuals with HIV is attributed to several factors, including premature aging, the impact of HIV infection, and the side effects of antiretroviral

therapy.(9,14) Premature aging in individuals with HIV leads to the earlier onset of physical comorbidities compared to those without HIV. Prolonged use of antiretroviral therapy has also been associated with an increased risk of developing comorbidities.(15) Furthermore, the toxic side effects of antiretroviral therapy can elevate the risk of conditions such as hypertension and diabetes mellitus.(16) Additionally, HIV infection itself can heighten the risk of vascular and respiratory diseases.(17)

The presence of comorbid diseases in elderly individuals with HIV exacerbates disease symptoms, contributes to disability, and triggers negative affective symptoms such as depression, leading to a decreased quality of life for pre-elderly individuals with HIV.(8) In this study, mild and moderate levels of depression were the most prevalent among the participants.

Table 2. Frequency distribution of respondents based on physical comorbidities and levels of depression

Variables	n	%
Comorbidities		
No	30	18.63
Yes	131	81.37
Type of comorbid diseases		
Arthritis	80	40.82
Hypertension	75	38.27
Diabetes Mellitus	13	6.63
Asthma	9	4.59
Heart disease	8	4.08
Stroke	7	3.57
Cancer	4	2.04
Number of comorbid diseases		
1 comorbid disease	53	40.15
≥2 comorbid diseases		
Depression		
No	78	48.45
Yes	83	51.55
Type of Depression		
Mild depression	45	27.95
Moderate depression	26	16.15
Moderate severe depression	9	5.59
Severe depression	3	1.86

The majority of pre-elderly individuals with HIV have physical comorbidities, with most having at least one comorbid condition, and a significant number experiencing mild to moderate depression. The presence of physical comorbidities and mental health issues in individuals with HIV necessitates comprehensive management to prevent further complications and adverse outcomes. It is hoped that government programs addressing HIV cases will not only focus on managing the infection itself but also address related physical and mental health comorbidities.

Table 3 shows the relationship between comorbidities and levels of depression in pre-elderly with HIV. The results of this study indicated that there was no significant relationship between physical comorbidities and levels of depression in pre-elderly individuals with HIV. Brett et al. stated that there was no relationship between comorbid diseases and depression in elderly individuals with HIV.(18)

Pre-elderly individuals with HIV require long-term antiretroviral therapy to manage the disease. However, some types of antiretroviral therapy have been associated with the onset of depressive symptoms. In addition to the psychological effects, these individuals are also at risk of developing complications related to the medication regimen they must adhere to over time.(16-17)

A significant number of pre-elderly with HIV present with more than one physical comorbidity, which can either induce or exacerbate depressive symptoms. These comorbidities may increase the complexity of managing both HIV and mental health, posing additional challenges in treatment adherence and overall quality of life.(7)

This study did not explore the relationship or impact of these conditions on the occurrence of depression in pre-elderly individuals with HIV. Consequently, future research is necessary to investigate the potential associations between long-term antiretroviral therapy use, comorbidities, and depressive symptoms in this population. Such studies could provide a deeper understanding of the mental health challenges faced by pre-elderly with HIV and guide the development of more comprehensive treatment strategies.

Haerawati et al. stated that there was a significant relationship between physical comorbidities and depression in the elderly in Indonesia.(19) This difference could be caused by variations in population, culture, environment, methods, and measurement tools used.

Physical comorbidities could cause the elderly to experience limitations in performing physical activities. Elderly individuals with comorbid diseases, along with pain and physical limitations, could develop depression.(19) In addition to comorbidities, long-term antiretroviral therapy, the side effects of antiretroviral therapy, stigma and discrimination, and low social support can also contribute to depression in pre-elderly individuals with HIV20. As individuals enter pre-adolescence, they experience a decline in immune system function, decreased physical activity, feelings of loneliness, low economic status, and physical disabilities. These factors could lead to feelings of helplessness and unhappiness, potentially triggering depression.(20)

Table 3. Relationship between comorbidities and levels of depression in pre-elderly with HIV

Comorbidities	Levels of Depression in Pre-elderly with HIV										p-value
	No depression		Mild		Moderate		Moderate severe		Severe		
	n	%	n	%	n	%	n	%	n	%	
No	15	50.00	12	40.00	2	6.67	1	3.33	0	0.00	0.341
Yes	63	48.09	33	25.19	24	18.32	8	6.11	3	2.29	

Depression in pre-elderly with HIV can result in depressive affect, loss of interest and joy, and reduced energy, leading to feelings of isolation and hopelessness.(21) This, in turn, can decrease treatment adherence and reduce the overall quality of life for pre-elderly individuals with HIV.

In Indonesia, the prevention and control of HIV/AIDS are guided by the global “Getting to Zero” policy. The government conducts health promotion activities through advocacy, partnerships, and community empowerment strategies. It encourages commitment from policymakers to create regulations or legal frameworks and to enhance and sustain funding and other resources to support HIV/AIDS response initiatives. These activities were carried out in collaboration with relevant government institutions, local governments, community organizations, and the media.(22)

The government also mobilizes local and community resources, such as the worker community, social media users, women's groups, teachers, youth groups, AIDS awareness citizens, and religious organizations. People living with HIV/AIDS and their families can play a direct role in the continuity of HIV treatment and achieving viral suppression. Enhancing the involvement of people with HIV/AIDS and peer support groups, such as community-based health services or healthcare facilities, has proven effective in improving the overall quality of care for people with HIV/AIDS. Partnerships with people with HIV/AIDS communities are continually strengthened in areas of planning, service delivery, monitoring, and evaluation. These partnerships help improve referrals, support adherence, and reduce stigma and discrimination.(22-23)

In this study, pre-elderly with HIV who had the most depression were at the mild depression level. Most of these pre-elderly individuals could still care for themselves independently in daily life, participate in volunteer services or social activities, join communities, and receive support from relatives and friends, thus remaining physically and mentally active. As a result, they had a better quality of life and experienced milder levels of depression.(24) However, if depression at this level is not treated, it could progress to moderate-severe depression or

severe depression.(25) In this study, three pre-elderly individuals with HIV, who had comorbidities and severe depression, experienced physical limitations and suicidal ideation. Pre-elderly individuals with HIV and severe levels of depression could experience an increased viral load, a reduced quality of life, and a higher risk of mortality.

This study has the advantage of being one of the first to focus on pre-elderly individuals with HIV. Most prior research has primarily concentrated on children, adolescents, and the elderly population. However, this study has limitations. Besides comorbidities, other factors may influence depression levels in pre-elderly with HIV, such as socio-economic status, duration of infection, and stigma, which require long-term observation. These factors could not be controlled by the researchers as a part of the inclusion and exclusion criteria, potentially affecting the sample size obtained and necessitating further research.

CONCLUSION

There is no significant association between comorbidities and the levels of depression among pre-elderly with HIV in DKI Jakarta. It is recommended that further research be conducted using a longitudinal study design to identify variables contributing to physical comorbidities and depression in pre-elderly individuals with HIV. Additionally, efforts should be made to develop integrated screening and treatment modules for HIV infection alongside physical comorbidities and mental health disorders.

REFERENCES

1. Kemenkes RI. Infodatin HIV AIDS [Internet]. Kementerian Kesehatan Republik Indonesia. Jakarta; 2020. Available from: <https://pusdatin.kemkes.go.id/resources/download/pusdatin/infodatin/infodatin-2020-HIV.pdf>
2. WHO. World health statistics 2022 (Monitoring health of the SDGs) [Internet]. Geneva; 2022. 27–28 p. Available from: <http://apps.who.int/bookorders>.
3. Kementerian Kesehatan RI. Laporan Situasi Perkembangan HIV AIDS dan PIMS di Indonesia,

- Triwulan IV Tahun 2021 [Internet]. Jakarta; 2021. Available from: https://siha.kemkes.go.id/portal/files_upload/Laporan_TW4_2021_OK_OK.pdf
4. Yang X, Zhang J, Chen S, Weissman S, Olatosi B, Li X, et al. health records data in South Carolina. *AIDS Care* [Internet]. 2021;33(5):594–606. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8068571/>
 5. Wing EJ. HIV and aging. *Int J Infect Dis*. 2016;53:61–8.
 6. De Francesco D, Sabin CA, Reiss P. Multimorbidity patterns in people with HIV. *Curr Opin HIV AIDS*. 2020;15(2):110–7.
 7. Farahat FM, Alghamdi YS, Farahat AF, Alqurashi AA, Alburayk AK, Alabbasi AA, et al. The prevalence of comorbidities among adult people diagnosed with HIV infection in a tertiary care hospital in western Saudi Arabia. *J Infect Public Health*. 2020;13(11):1699–704.
 8. WHO. Mental health of older adults [Internet]. Available from: <https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults>
 9. Zhang H, Wang S, Wang L, Yi X, Jia X, Jia C. Comparison of the Geriatric Depression Scale-15 and the Patient Health Questionnaire-9 for screening depression in older adults. *Geriatr Gerontol Int*. 2020;20(2):138–43.
 10. WHO. Depressive disorder (depression) [Internet]. Available from: <https://www.who.int/news-room/fact-sheets/detail/depression>
 11. PHQ9_Indonesian for Indonesia. Available from: https://www.phqscreeners.com/images/sites/g/files/g10060481/f/201412/PHQ9_Indonesian_for_Indonesia.pdf
 12. Dian CN. Validitas Dan Reliabilitas The Patient Health Questionnaire (PHQ-9) Versi Indonesia. Tesis. 2020. Available from: <https://repositori.usu.ac.id/handle/123456789/29791>
 13. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: Validity of a Brief Depression Severity Measure. *J Gen Intern Med*. 2001;16(9):606–13.
 14. WHO. Depression. Availbale from: <https://www.who.int/news-room/fact-sheets/detail/depression>
 15. Hadavandsiri F, Shafaati M, Mohammad Nejad S, Ebrahimzadeh Mousavi M, Najafi A, Mirzaei M, et al. Non-communicable disease comorbidities in HIV patients: diabetes, hypertension, heart disease, and obstructive sleep apnea as a neglected issue. *Sci Reports*. 2023;3(1):1–8.
 16. Pourcher V, Gourmelen J, Bureau I, Bouee S. Comorbidities in people living with HIV: An epidemiologic and economic analysis using a claims database in France. *PLoS One*. 2020;15(12).
 17. Lorenc A, Ananthavarathan P, Lorigan J, Banarsee R, Jowata M, Brook G. The prevalence of comorbidities among people living with hiv in brent: A diverse London Borough. *London J Prim Care (Abingdon)*. 2014;6(4):84–90.
 18. Millar BM, Starks TJ, Gurung S, Parsons JT. The Impact of Comorbidities, Depression, and Substance Use Problems on Quality of Life Among Older Adults Living With HIV. *AIDS Behav* [Internet]. 2017;21(6):1684.
 19. Idris haerawati, Hasri SN. Factors Associated with the Symptom of Depression among Elderly in Indonesian Urban Areas. *J Psikol*. 2023;50(1):45–64.
 20. He K, Zhang X, Yang D, Fu X, Chen Y, Chen Z, et al. Analysis of Factors Influencing Depression in Elderly People Living with HIV/AIDS Based on Structural Equation Model: A Cross-Sectional Study in Guangxi, China. *J Multidiscip Healthc*. 2023;16:1491–501.
 21. Maslim R. *Diagnosis Gangguan Jiwa Rujukan PPDGJ III dan DSM V*. Jakarta: FK Unika Atma Jaya; 2013:64.
 22. Peraturan Menteri Kesehatan Republik Indonesia No. 23 Tahun 2022 tentang Penanggulangan Human Immunodeficiency Virus, Acquired Immunodeficiency Syndrome, dan Infeksi Menular Seksual [Iternet]. Available from: <https://peraturan.bpk.go.id/Details/245543/permenkes-no-23-tahun-2022>
 23. Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.0107/MENKES/90/2019 tentang Pedoman Nasional Pelayanan Kedokteran Tatalaksana HIV [Internet]. Available from: https://siha.kemkes.go.id/portal/files_upload/PNPK_HIV_Kop_Garuda__1_.pdf
 24. Liu CC, Lin YT, Cheng KC, Pan HH, Chiou CP. Predictors of Depression Level among Community-Dwelling Elderly Persons. *Int J Environ Res Public Health*. 2022;19(15).
 25. 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.