

Correlation of depression and quality of life in HIV/AIDS patients

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Abstract. Depression in HIV/AIDS patients will influence the quality of life (QoL) demographically or by its own HIV disease. QoL-affected factors could be helpful in making important policy decisions and health care interventions, especially in Banda Aceh. The study aims to find the relationship between depression and quality of life in HIV/ AIDS patients. A cross sectional design and the sample recruitment technique was done by total sampling that all outpatient and inpatient HIV/ AIDS patients who had received antiretroviral therapy or not and were willing to be interviewed in Zainoel Abidin Hospital, Aceh Province, Indonesia. QoL was assessed using WHOQoL and depression data were collected using the BDI questionnaires. The study resulted in 29 HIV/ AIDS patients which the most were men (62.1%), and the mean age was 33.14 ± 6.13 years old. The most transmitted type was by IVDU, and the CD4⁺ count was less than 350 cells. There is a strong relationship between sex and QoL ($p = 0.005$) and depression is strongly negative correlation with QoL ($r = -0.619$, $p < 0.00$). The conclusion of the study i.e there is a relationship between depression and quality of life in HIV/ AIDS patients.

1. Introduction

The problem of human immunodeficiency virus (HIV)/ acquired immune deficiency syndrome (AIDS) is a major problem that threatens Indonesia and many countries around the world, it is in the second ranking of mortality in the world.[1] The epidemic of HIV/ AIDS in Indonesia over past 4 years has changed from low epidemic level to concentrated level epidemic.[2] According to the Directorate General of Communicable Disease Eradication and Environmental Health of the Ministry of Health of the Republic of Indonesia number of HIV victim and AIDS cases from July 1st, 1987 to March 2008 are the number per 100,000 national population of 5.23 with a total of 17,998 people, 11,868 people with AIDS and 6,130 people with HIV.[3]

Depression in HIV related to psychiatric disorders.[4] The prevalence of these severe depressive disorder in HIV infected patient is 2 to 3 times higher than in the general population.[5,6] A study reported in HIV treated patients, the prevalence of depression in HIV almost 40% and up to to



50%.[4]The evaluation performed by psychiatrists on HIV-infected patients were about 8%-67% who had suffered from severe depression.[5]

The prevalence of severe depression in people with HIV is 2 to 3 times higher than in the general population. In women with HIV positive 4 times higher than HIV negative women and 3 times higher in HIV positive men.[7,8] In HIV treated patients, this number becomes increasing and up to 40%. Depression affects the patient's activities and the HIV treatments, especially in the patient's compliance with the antiretroviral therapy (ART), which will also affect the patient's QoL.[9,10] Depression research on HIV/ AIDS patients has been widely used, but in Aceh, especially in the Department of Internal Medicine, Dr. Zainoel Abidin Hospital in Aceh Province, Indonesia, there is no data any research to be conducted.

2. Methods

2.1. Study Design

This study is an observational analytic study with across sectional design that is in Voluntary Counselling and Testing (VCT) clinic and inpatient room of internal medicine department of dr. Zainoel Abidin Hospital Aceh Province, Indonesia.

2.2. Participants and Samples

The population in this study was as atotal sampling of all outpatient and inpatient HIV/ AIDS patients who had received antiretroviral therapy or not and were willing to be interviewed from June to December 2016. Depression data collection was conducted using the Beck Depression Inventory (BDI-II), and QoL collected from the World Health Organization Quality of Life (WHOQoL) questionnaires. In medical records as secondary data, we took data of sex, the early diagnosed with HIV/ AIDS, type of infections, types of opportunistic infections, antiretroviral drugs, and CD4+.

2.3. Statistical Analysis

Data was entered, verified and cleaned using Microsoft Excel and analysis was done using SPSS16.0 version. In the primary analysis, we compared factors associated with the occurrence of depression and QoL in HIV/ AIDS patients consisting of sex, marital status, duration of diagnosing, transmission, antiretroviral therapy (ART), opportunistic infection and CD4 levels using Chi-square tests. In a secondary analysis, we assessed the correlation between depression and quality of life using Pearson correlation.

3. Results and Discussion

3.1. Baseline Characteristics

We found that from 29 respondents, there were thesex demographic data of HIV/ AIDS patients in dr. Zainoel Abidin Hospital was dominated by male patients as many as 18 respondents (62.1%) with an average age of 33.14 ± 6.13 years. The most common type of HIV/ AIDS transmission was through intravenous drug users (IVDU) 22 respondents (75.9%) and most have been diagnosed with HIV/ AIDS for more than 12 months (62.1%) with CD4 <350 cells/ mm³ as many as 65.5%. The most widely used combination of antiretroviral therapy (ARV) was zidovudine, lamivudine, and nevirapine (62.1%) while those who had not received ARVs were 17.2% (table 1).

Table 1. Baseline characteristics of HIV/AIDS patients.

Characteristics	Total (n=29)
Sex, n (%)	
• Male	18 (62.1)
• Female	11 (37.9)
Age Average $\pm$ SD (years old)	33.14 $\pm$ 6.13

Group of Age, n (%)	
• 20-29 y.o	7 (24.1)
• 30-40 y.o	18 (62.1)
• > 40 y.o	4 (13.8)
Marital status n (%)	
• Single	13 (44.8)
• Married	12 (41.4)
• Widowed	4 (13.8)
Duration of diagnose, n (%)	
• < 12 months	11 (37.9)
• > 12 months	18 (62.1)
Transmission, n (%)	
• IVDU	22 (75.9)
• Sexually	7 (24.1)
Antiretroviral Therapy, n (%)	
• Zidovudine, Lamivudine, Nevirapine	18 (62.1)
• Tenofovir, Lamivudine, Nevirapine	4 (13.8)
• Zidovudine, Lamivudine, Efavirenz	2 (6.9)
• No ARV Therapy	5 (17.2)
Opportunistic Infection, n (%)	
• Oral Candidiasis	9 (31)
• Chronic diarrhea	3 (10.3)
• Lung Tuberculosis	1 (3.5)
• Extra Lung Tuberculosis	4 (13.8)
• None	12 (41.4)
CD4, n (%)	
• <350	19 (65.5)
• >350	10 (34.5)

3.2. Characteristics of depression in HIV/ AIDS patients

There are many factors associated with the occurrence of depression in HIV/AIDS patients include sex, marital status, duration of HIV diagnosis, type of transmission, type of opportunistic infections and CD4 levels. In this study, the results of the depression measurement using Beck Depression Inventory (BDI) questionnaires have obtained the prevalence of depression in HIV/AIDS patients as much as 79.3% (table 2).

Table 2. Frequency distribution of Beck depression inventory (BDI-II) of HIV / AIDS patients.

Variables (Total n=29)	Beck Depression Inventory (BDI-II), n (%)				p
	No depression symptoms	Mild Depression	Moderate Depression	Severe Depression	
Sex					
• Male	6 (20.7)	4 (13.8)	2 (6.9)	6 (20.7)	0.6
• Female	4 (13.8)	1 (3.4)	3 (10.3)	3 (10.3)	
Marital Status					
• Single	6 (20.7)	2 (6.9)	3 (10.3)	2 (6.9)	0.08
• Married	3 (10.3)	3 (10.3)	0 (0)	6 (20.7)	
• Widowed	1 (3.4)	0 (0)	2 (6.9)	1 (3.4)	
Duration of Diagnose					
• < 12 months	2 (6.9)	2 (6.9)	4 (13.8)	3 (10.3)	0.3
• > 12 months	8 (27.7)	3 (10.3)	1 (3.4)	6 (20.7)	
Transmission					
• IVDU	3 (10.3)	1 (3.4)	2 (6.9)	1 (3.4)	0.6
• Sexually	7 (24.1)	4 (13.8)	3 (10.3)	8 (27.6)	
ARV Therapy					
• Zidovudin, Lamivudin, Nevirapin	6 (20.7)	4 (13.8)	3 (10.3)	5 (17.5)	
• Tenofovir, Lamivudin,	2 (6.9)	0 (0)	0 (0)	2 (6.9)	

Nevirapin					0.8
• Zidovudin, Lamivudin, Efavirens	0 (0)	0 (0)	1 (3.4)	1 (3.4)	
• Belum dapat ARV	2 (6.9)	1 (3.4)	1 (3.4)	1 (3.4)	
Opportunistic Infections					
• Oral Candidiasis	1 (3.4)	2 (6.9)	2 (6.9)	4 (13.8)	
• Chronic diarrhea	0 (0)	0 (0)	2 (6.9)	1 (3.4)	0.2
• Lung tuberculosis	2 (6.9)	0 (0)	1 (3.4)	1 (3.4)	
• Extra lung tuberculosis	1 (3.4)	0 (0)	0 (0)	0 (0)	
• None	6 (21)	3 (10.3)	0 (0)	3 (10.3)	
CD4					
• <350	4 (13.8)	4 (13.8)	4 (13.8)	7 (24.2)	0.6
• >350	6 (20.7)	1 (3.4)	1 (3.4)	2 (6.9)	

3.3. Characteristics of Quality of Life in HIV/ AIDS patients

Quality of life assessment of HIV/AIDS patients in dr. Zainoel Abidin Hospital using the World Health Organization Quality of Life (WHOQoL) questionnaire found that sex was related to QoL ($p < 0.05$) while other factors were unrelated (table 3).

Table 3. Frequency distribution of world health organization quality of life (WHOQoL) of HIV/ AIDS respondents.

Variable (Total n=29)	World Health Organization Quality of Life (WHOQoL), n (%)			p
	Poor	Moderate	Well	
Sex				
• Male	1 (3.4)	12 (41.4)	5 (17.2)	0.05
• Female	2 (6.9)	9 (31)	0 (0)	
Marital Status				
• Single	0 (0)	9 (31)	4 (13.8)	0.25
• Married	2 (6.9)	9 (31)	1 (3.4)	
• Widowed	1 (3.4)	3 (10.3)	0 (0)	
Duration of diagnose				
• < 12 months	1 (3.4)	9 (31)	1 (3.4)	0.6
• > 12 months	2 (6.9)	12 (41.4)	4 (13.8)	
Transmission				
• IVDU	0 (0)	4 (13.8)	3 (10.3)	0.08
• Sexually	3 (10.3)	17 (58.6)	2 (6.9)	
ARV Therapy				
• Zidovudin, Lamivudin, Nevirapin	2 (6.9)	13 (44.8)	3 (10.3)	0.9
• Tenofovir, Lamivudin, Nevirapin				
• Zidovudin, Lamivudin, Efavirens	0 (0)	4 (13.8)	0 (0)	
• Belum dapat ARV	0 (0)	1 (3.5)	1 (3.5)	
	1 (3.5)	3 (10.3)	1 (3.5)	
Opportunistic Infections				
• Oral Candidiasis	1 (3.4)	7 (24.5)	1 (3.4)	0.5
• Chronic diarrhea	1 (3.4)	1 (3.4)	1 (3.4)	
• Lung tuberculosis	0 (0)	4 (13.8)	0 (0)	
• Extra lung tuberculosis	1 (3.4)	0 (0)	0 (0)	
• None	2 (6.9)	9 (31)	1 (3.4)	
CD4				
• <350	1 (3.5)	16 (55.2)	2 (6.9)	0.09
• >350	2 (6.9)	5 (17.2)	3 (10.3)	

3.4. Relationship between depression and QoL in HIV/ AIDS patients

The relationship between depression and QoL in HIV / AIDS patients shows that (Figure 1).there is a significant correlation between depression and QoL in HIV / AIDS patients ($r -0,619$, $p 0.00$) ie. the more depressed an HIV/ AIDS patient. it will get worse QoL and showed that the lower depression score, the lower QoL of HIV patients, the greater the social support given, the smaller the rate of depression can occur.

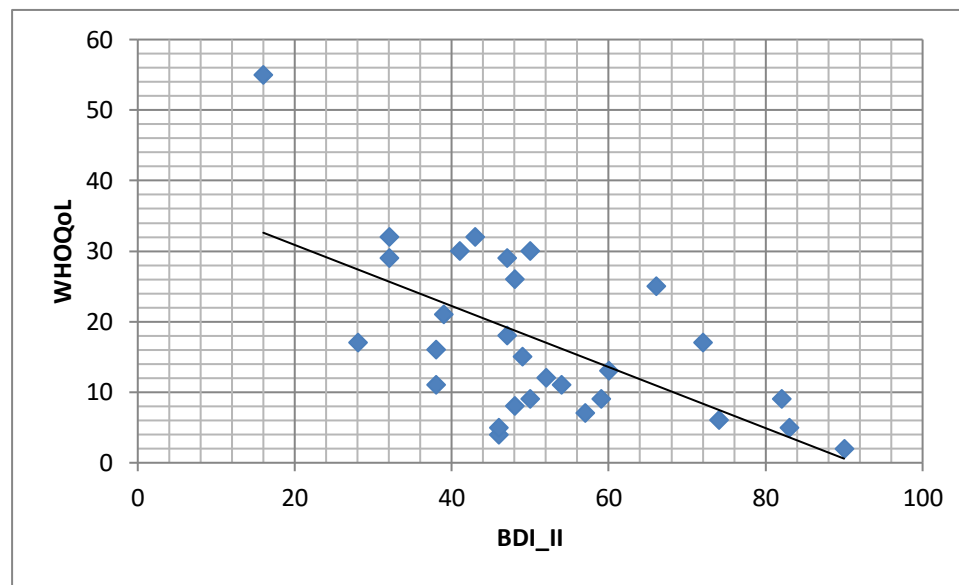


Figure 1. It is a correlation between depression and QoL.

4. Discussion

This cross sectional study was conducted to depression and QoL in HIV/AIDS patients. The Joint United Nations Program on HIV/ AIDS (UNAIDS) had estimated that by the end of 2013, approximately 10% of HIV-infected patients were over 50 years old in the developed countries, which can be three times more. Based on gender it was found that women were more likely to experience a heavy burden of life than men whose affected cognitive and behavioral coping, as well as they were influenced by education levels.[11]

We have reported a prevalence of depression in HIV/ AIDS patients was 79.3%. The prevalence in this study is more than to other reports in Delhi were found 58.75% that were prevalence depression increased with the severity symptoms.[12] Depression that occurs in people with HIV/ AIDS can come for several factors; those are due to the invasion of HIV into the central nervous system (CNS), which results in neuropathological changes in the basal ganglia, thalamus, brainstem nucleus that causes dysfunction, causing disturbances in mood and motivation. Side effects of the use of anti-retroviral drugs such as efavirenz, interferon, zidovudine and complications of opportunistic infections are also factors that can lead to depression in HIV/AIDS. Another factor is the psychological effects appeared after been diagnosed as HIV positive patient, usually the patient experienced rejection reaction from work, family, and society.[13,14]

The QoL is a multidimensional condition which involves the physical, emotional, mental, social, and social components that are more common lower in the elderly who suffer from HIV than the adult, but the psychological, physical, and functional problems in the world are not clear. Antiretroviral therapy aims to improve health and prolong the life expectancy of patients and reduce depression in HIV/AIDS-infected patients which can also have an impact on improving quality of life.[15] In this study, ARV therapy was not associated with depression or QoL, this could be linked because the

QoL theoretically is a multidimensional condition so that beside depression, it also involves social behavior.

In this study, we found that higher depression score was associated with lower QoL of HIV/ AIDS patients, this was in line with study in Denmark that found there was a relationship between neurocognitive with quality of life, female gender, depression status, length of education and index low body mass will worsen the quality of life of HIV/ AIDS patients.[16] Other studies in Spain also found that psychological factors play a role as protector and non-protector against the physical and mental life quality index of HIV patients.[17]

5. Conclusions

Depression in HIV/ AIDS patients is common in men and the QoL of HIV/ AIDS patients is related to sex. There is a strong correlation between depression and the QoL of HIV/ AIDS patients.

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