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Health Care Needs Among People Living with HIV: The Implication of Continuum of Care

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Background: Human immunodeficiency virus remains a major public health problem in Indonesia. People living with HIV (PLWH) have various health problems as result from disease progression that impacts their health care needs. This study aims to explore health care needs and to test the factors associated with health care needs among people living with HIV.

Methods: A cross-sectional descriptive study design was undertaken with 243 respondents completing a self-reported HIV-Health Care Need Questionnaire. Participants were recruited using the purposive sampling technique from six HIV clinics in West Java, Indonesia. The data were analyzed using descriptive and multiple logistic regression statistical techniques.

Results: The majority of the subjects were diagnosed within less than 5 years and have been receiving antiretroviral therapy. Nursing care was indicated as the most needed, offered, and received care. Emergency financial assistance, legal services, insurance premiums, and nutritional intervention were perceived as gaps between needed and received. Characteristics such as age, educational background, having HIV manager, and income were significantly correlated to nutritional care ($p< 0.05$). Nutritional care was increased by 3.96% if PLWH having HIV manager (CI: 1.17–13.38, $p< 0.05$).

Conclusion: Addressing the gap between health care needs and health offered was important to ensure that care was received appropriately. Continuing assessment of health care needs can provide direction to deliver appropriate care and ensure a comprehensive continuum of care for PLWH.

Keywords: continuum of care, continuity of patient care, health services, HIV testing, needs

Introduction

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) remain major health problems in many countries.[1] In 2021, the United Nations Programme on HIV/AIDS (UNAIDS) reported that there were 38.4 million PLWH globally.[2] Greater than 99% of PLWH in South-East Asia reside in five countries, namely, India, Indonesia, Myanmar, Nepal and Thailand.[3,4] AIDS-related deaths and new HIV infections have declined in all affected countries except Indonesia.[5] In Indonesia, the number of PLWH is approximately 520,000 with a 0.3% prevalence among adults.[4] Additionally, a rapid increase in the number of AIDS-related deaths from 24,000 in 2010 to 38,000 in 2018 has been noted.[6]

People living with HIV (PLWH) represent a wide range of individuals and experience many problems due to AIDS and related treatment. The advancement of anti-retroviral therapy (ART) has changed drastically the course of disease and decreased HIV-associated morbidity and mortality. It has transformed HIV from an acute-fatal illness to a manageable long-term condition.[7] Although ART allows PLWH to live longer, they still face many challenges related to major chronic complications and comorbidities as well as side effects of lifelong treatment.[8] In addition, HIV/AIDS may cause a significant psychological burden. PLWH often reported depression and anxiety resulting from the HIV diagnosis and the difficulties of living with a chronic illness. Social stigma and discrimination in both community and health-care setting were still prevalent in many countries. The HIV-related health problems have a significant impact on health care needs and services of PLWH.[9,10]

Several studies have examined the factors influencing health care for PLWH, namely, individuals, relationships, communities, health care systems, policies[11] and work environments.[12] Proper health care is necessary to increase health-related

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quality of life and well-being of PLWH.[10] Failure to address health care needs of PLWH may impact the success of halting HIV epidemic that has been targeted by the world leaders to be achieved in 2030. In addition, the health-care needs of PLWH can be addressed by preventive measures, counselling, diagnostic methods, treatment, and rehabilitation.[13] Therefore, better understanding the health- care needs of PLWH is very important in motivating and keeping them engaged with care and in providing specific care that fit with their specific needs. When PLWH receive full attention and care that suit their characteristics and needs, they will be motivated to visit the clinic, adhere to treatment, and retain care, which subsequently leads to effective viral suppression. On the other hand, a better understanding and a continuum of care will probably increase the proportion of those initiating ART, engaging in sustained care, and achieving viral suppression.[14] Nurses are the main health care providers who play a major role in providing nursing care for HIV patients. Nevertheless, nurses need to have a deep understanding of the healthcare needs of their patients to ensure comprehensive and continuous care.

Methods

Study Design

This study aims to examine the health care needs among people living with HIV as an implication of continuum care in Indonesia. A cross-sectional descriptive study design was undertaken in this study.

Sample

The study population was PLWH in five major cities, West Java, Indonesia. The sample of 243 respondents were recruited purposively from six hospital-affiliated HIV clinics in five major cities in West Java (Bandung City, Cirebon City, Cirebon Regency, Sumedang Regency, and Banjar City). The inclusion criteria were adult HIV-positive patients who has been living with HIV for at least 6 months since they were found to be HIV positive, able to read and write in Indonesia language, and willing to participate throughout the study. During the research process, no respondent resigned.

Data Collection

The data were collected from May to October 2017. This study was conducted according to the ethical guidelines of the Declaration of Helsinki. Informed consent was obtained from all respondents. The study was approved by the Research Ethics Committee of the Universitas Padjadjaran, Indonesia with the letter number 807/UN.6.C.10/PN/2017. The health care need data were collected using the self-reported HIV-Health Care Need Questionnaire (HIV-HCNQ), which was adapted from the Atlanta Ema Consumer Survey of People Living with HIV and AIDS.[15] The instrument was adapted and modified to fit the contextual background of the targeted population. The questionnaire consisted of 48 items divided into three parts: demographic data, health characteristics, and health care needs. The questionnaire consists of open questions, multiple choice questions, and dichotomous questions. Two experts from Indonesia reviewed the content validity of the instrument, which yielded good agreement with a Cronbach alpha value of 0.821. The sociodemographic data including HIV clinic, gender, age, marital status, education level, monthly income, and occupation were collected. The health characteristic refers to the categorization of the health status into four categories including risk behavior and HIV test, anti-retroviral therapy (ART), care, and support. For health care related to support, the data was presented as "needed care", "offered care", "received care", and "gap". The needed care refers to the care needed by the PLWH, the offered care refers to the care offered by the HIV care provider, received care refers to the care received by the PLWH, and the gap refers to the difference between received care and needed care.

Data Analysis

Descriptive statistical techniques including frequency, percentage, and p-value significance level of 0.05 were used to describe the demographics, health characteristics, and care needs of the respondents. A logistic regression model was used to determine factors affecting health care needs. All variables with p values < 0.05 in the univariable analysis were entered in a multivariable analysis. The data were managed and analyzed using IBM SPSS 24.0 for windows.

Results

Demographic Characteristics

Demographic data of respondents (n=243) from six hospitals showed that the majority of the respondents were male (n=161, 66.3%), and most of the respondents were 30–39 years in age (n=108, 44.4%). Most of the respondents were married (n=109, 44.9%), and greater than half of the total respondents had a high school education (n=137, 56.4%). Respondents with an income of IDR >1,500,000–2,500,000 (n=66, 27%) had jobs as private employees (n=94, 38.7) (Table 1).

Health Characteristics

The majority of the positive respondents diagnosed in less than five years were (n=187, 75.7%) homosexual (n=74, 30.5%), diagnosed as HIV positive between the ages of 20–29 years old (n=138, 56.8%), and had not been previously tested for HIV (n=151, 62.1%); therefore, the majority of positive respondents were likely to get HIV tests because they felt sick (n=61, 25.1%). The majority of respondents were receiving ART (n=216, 88.9%). Most of the respondents had been on ART for less than 5 years (n=167, 68.7%), participated in counselling (n=221, 97.5%), and never changed ART history (n=237, 97.5%). The majority of respondents did not miss the drug within the last 30 days (n=176, 72.4%). Most respondents had a recent CD4 count of 350–500 cells/mm³ (n=64, 26.3%) and did not know their recent result of the viral load test (n=139, 57.2). The majority reported that they had not been hospitalized due to HIV/AIDS-related conditions for the past 12 months

Table 1 Respondents' Demographic Characteristics (n=243)

Characteristics	n	%
HIV Clinics		
Hospital A	66	27.2
Hospital B	60	24.7
Hospital C	30	12.3
Hospital D	27	11.1
Hospital E	30	12.3
Hospital F	30	12.3
Gender		
Male	161	66.3
Female	79	32.5
Female Transgender	3	1.2
Age (years old)		
15–19	4	1.6
20–29	85	35
30–39	108	44.4
40–49	40	16.5
50–59	4	1.6
>60	2	0.8
Marital Status		
Married	83	34.2
Single	109	44.9
Widow	33	13.6
Widower	16	6.6
Divorced	2	0.8
Education Level		
Elementary School	21	8.6
Junior High School	45	18.5
High School	137	56.4
College or higher	37	15.2
Others	3	1.2

(*Continued*)

Table 1 (Continued).

Characteristics	n	%
Monthly Income (IDR)		
None	46	18.9
≤ 750,000	35	14.4
>750,000–1,500,000	48	19.8
>1,500,000–2,500,000	66	27.2
>2,500,000	48	19.8
Occupation		
Student	11	4.5
Government employee	1	0.4
Private employee	94	38.7
Entrepreneur	59	24.3
Employee	11	4.5
Housewife	48	19.8
Others	19	7.8

Abbreviations: n, frequency; IDR, Indonesian Rupiah; HIV, Human Immunodeficiency Virus.

(n=151, 62.1%). Government hospitals were chosen as the most visited health care facility (n=214, 88.1%). Approximately half of the respondents personally paid for their treatment cost (n=117, 48.1%). Additionally, one-third of the subjects reported having comorbid diseases, such as tuberculosis (TB), hypercholesterol, hypertension, asthma, and other chronic diseases. The majority did not report having hepatitis (n=219, 90.1%). The majority of respondents had not visited mental health services (n=199, 81.8%). Approximately half of the subjects who visited the service reported depression as their main reason (40.9%). Additionally, approximately half of the subjects had substance abuse counselling (n=119, 49%), and they talked about HIV mostly with health professionals (n=125, 51.4%) (Table 2).

Table 2 Health Characteristics Among PLWH (n=243)

Characteristics	n	%
Health Characteristic Related to Risk Behaviour and HIV-test		
Being as HIV positive		
≤ 5 years old	184	75.7
> 5–10 years old	34	14.0
10–15 years old	19	7.8
> 15 years	6	2.5
Risk behaviour of HIV infected		
Homosexual	74	30.5
Heterosexual	52	21.4
Bisexual	27	11.1
Syringe sharing	36	14.8
Do not know	40	16.5
Blood Transfusion	2	0.8
Others	12	4.9
Age of diagnosed with HIV positive (years old)		
15–19	13	5.3
20–29	138	56.8
30–39	70	28.8
40–49	19	7.8
50–59	1	0.4
>60	2	0.8

(*Continued*)

Table 2 (Continued).

Characteristics	n	%
Ever tested for HIV before tested HIV positive		
Yes	86	35.4
No	151	62.1
No remember	6	2.5
Main reason to get HIV test		
Feeling sick	61	25.1
Was in the hospital	52	21.4
Had unprotected sex	30	12.3
Had sex with HIV positive person	10	4.1
Part of personal testing routine	10	4.1
Partner's recommendation	12	4.4
Part of prenatal care	6	2.5
Community program	15	6.2
Peer pressure	4	1.6
Involved in sex work	1	0.4
Media campaigns	2	0.8
Part of routine care	2	0.8
Sharing injection equipment (needles)	7	2.9
No particular reason	5	2.1
Others	26	10.7
Health Characteristic related to ART		
Receiving ART		
Yes	216	88.9
No	27	11.1
Length of time on ART (years)		
No ART	27	11.1
< 5	167	68.7
5–10	34	14.0
> 10–15	12	4.9
> 15	3	1.2
Adherence Counselling		
Yes	221	97.5
No	22	9.1
ART Change History		
Never	237	97.5
Once	5	2.1
Twice	1	0.4
Missing dose of ART within the last 30 days		
Never	176	72.4
1 or 2 times in a month	59	24.3
1 or 2 times in a week	2	0.8
More than 2 times in a week	1	0.4
Stop taking medicine	5	2.1
The latest time for CD4 test		
Last 1 month	40	16.5
Last 3 month	52	21.4
Last 6 month	85	35.0
1 year or more	44	18.1
Not know	22	9.1

(*Continued*)

Table 2 (Continued).

Characteristics	n	%
Recent CD4 count (cells/mm^3)		
Under 200	34	14.0
Between 200–350	60	24.7
Between 350–500	64	26.3
More than 500	37	15.2
Never been informed the results	2	0.8
Not know	46	18.9
Latest Viral Load Test		
Last 1 month	31	12.8
Last 3 month	25	10.3
Last 6 month	26	10.7
1 year or more	60	24.7
Not know	101	41.6
Recent result of Viral Load test (copies/mL)		
Not detected	60	24.7
Under 200	12	4.9
More than 200	29	11.9
Never been informed the results	3	1.2
Not know	139	57.2
Health Characteristic related to Care		
Hospitalized for an HIV/AIDS related condition during the past 12 months		
Yes	92	37.9
No	151	62.1
Health care facilities that most frequently visited		
Government Hospital	214	88.1
Private Hospital	7	2.9
Community Health Center	8	3.3
Clinic/Physician	6	2.5
Other Clinics	8	3.3
Source of Costs for Treatment		
Personal	117	48.1
Family	28	11.5
Government Insurance	95	39.1
Private Insurance	3	1.2
Comorbidity disease		
DM	1	0.4
Hypertension	11	4.5
Heart Disease	2	0.8
Hypercholesterol	12	4.9
Kidney Disease	3	1.2
Chronic Lung Disease	1	0.4
Asthma	4	1.6
Neuropathic (Nerve pain)	2	0.8
Osteoporosis	1	0.4
TB	32	13.2
Others	11	4.5
None	163	67.1

(*Continued*)

Table 2 (Continued).

Characteristics	n	%
Infectious Disease		
Hepatitis A	1	0.4
Hepatitis B	1	0.4
Hepatitis C	22	9.1
None	219	90.1
Health Characteristic related to Support		
Mental Health Service		
Yes	44	18.1
No	199	81.8
Having mental health problems (n=44)		
Depression	18	40.9
Bipolar disorder	1	2.3
Anxiety	16	36.4
Difficult to concentrate	4	9.1
Agoraphobia	2	4.5
Others	3	6.8
Having substance abuse counseling:		
Yes	119	49
No	124	51
Most frequently talked about HIV with.		
Health Professional	125	51.4
Friend	22	9.1
Family members	51	21
Other PLWH	20	8.2
Counsellor	5	2.1
Case manager	3	1.2
Support Group	15	6.1
Others	2	0.8

Abbreviations: n, frequency; HIV, Human Immunodeficiency Virus; ART, Anti Retroviral Therapy; CD4, Cluster of Differentiation 4 Cell; HIV/AIDS, Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome; TB, Tuberculosis.

Health Care Service and Support Needed

Table 3 shows the health care services and support needed by the subjects. Nursing care was reported to be mostly needed by the majority (n=234, 96.3%) followed by treatment compliance (n=227, 93.4%), peer group support (n=203, 83.5%), financial assistance for examinations (n=196, 80.7%), and premium insurance (n=195, 80.2%). However, they emphasized the wide gap between the needed and received services, particularly in terms of premium insurance, emergency financial assistance (EFA), nutritional care, and legal services. These results indicate that PLWH have a high need for those services, but only a few received them.

Multivariate Analysis

A logistic regression analysis was performed to examine the relationships between subjects' characteristics and components of health care and support needed. The results showed some characteristics (age, educational background, having HIV manager, and income) were significantly correlated to nutritional care (Table 4). On a multivariate analysis, it was found that after controlled by age, education, and income; for all health care and support needed, having HIV manager remains significantly correlated to nutritional care. Nutritional care was increased by 3.96% if PLWH having HIV manager (Table 5).

Table 3 Health Care and Support Needed (n=243)

Health Care and Support	Need Care	Offered Care	Received Care	Gap*
	n (%)	n (%)	n (%)	(%)
Nursing Care	234 (96.3)	223 (91.8)	221 (90.9)	5.4
Treatment Compliance	227 (93.4)	214 (88.1)	206 (84.8)	8.6
Peer group support	203 (83.5)	172 (70.8)	158 (65.0)	18.5
Financing assistance for diagnostic/ laboratory examinations	196 (80.7)	131 (53.9)	125 (51.4)	29.3
Insurance Premium Assistance	195 (80.2)	119 (49.0)	108 (44.4)	35.8
Reminder to take medication	191 (78.6)	161 (66.3)	150 (61.7)	16.9
Emergency Financial Assistance	189 (77.8)	95 (39.1)	92 (37.9)	39.9
Assistance in providing medicine	188 (77.4)	110 (45.3)	114 (46.9)	30.5
Nutrition Care	182 (74.9)	105 (43.2)	95 (39.1)	**35.8**
Individual counselling	170 (70.0)	134 (55.1)	125 (51.4)	18.6
Transportation to health services	151 (62.1)	68 (28.0)	61 (25.1)	37
Support when critical conditions	150 (61.7)	84 (34.6)	83 (34.2)	27.5
Group counselling	148 (60.9)	112 (46.1)	99 (40.7)	20.2
Dental and Oral Care	146 (60.1)	82 (33.7)	71 (29.2)	30.9
Legal Services	144 (59.3)	61 (25.1)	56 (23.0)	36.3
Psychiatric Consultation	134 (55.1)	78 (32.1)	70 (28.8)	26.3
Psychotropic substances Counselling	117 (48.1)	76 (31.3)	67 (27.6)	20.5
Child care	67 (27.6)	45 (18.5)	42 (17.3)	10.3

Note: *Gap = the percentage of need care – the percentage of received care.

Table 4 Logistic Regression Analysis for Factors Affecting Healthcare Need on Nutritional Care

Variable	OR	CI	P value
Age	**0.96**	**0.93–0.99**	0.044
Gender			
– Male (ref.)			
– Female	0.98	0.52–1.81	0.937
– Transgender	0.66	0.66–7.49	0.738
Educational background			
– Elementary (ref.)			
– Junior high school	2.06	0.69–6.12	0.192
– Senior high school	2.68	1.03–6.95	0.043
– College	2.33	0.74–7.33	0.147
– Others	1.50	1.12–19.24	0.755
Marital status			
– Married (ref.)			
– Single	1.53	0.79–2.93	0.204
– Widow	1.15	0.47–2.82	0.761
– Widower	1.87	0.49–7.13	0.361
– Separated			
Employment			
– Employed (ref.)			
– Unemployed	0.81	0.45–1.49	0.500

(*Continued*)

Table 4 (Continued).

Variable	OR	CI	P value
Being PLWH (years)	1.02	0.95–1.09	0.632
On ART			
– Yes (ref.)			
– No	0.95	0.38–2.38	0.917
ART duration	1.02	0.95–1.09	0.632
Have a counseling on ART treatment			
– Yes (ref.)			
– No	0.55	0.22–1.38	0.207
Have comorbid			
– Yes	0.59	0.28–1.21	0.146
– No (ref.)			
Have HIV manager			
– Yes	4.29	1.34–13.80	0.014
– No	3.27	1.01–10.65	0.049
– Not yet (ref.)			
Income			
– Do not have (ref.)			
– < Minimum wages	2.04	1.00–4.17	0.050
– > Minimum wages	2.02	0.82–4.98	0.124

Table 5 Multivariate Logistic Regression Analysis for Factors Affecting Healthcare Need on Nutritional Care

Variable	aOR	CI	P value
Age	0.97	0.93–1.01	**0**.065
Educational background			
– Elementary (ref.)			
– Junior high school	1.49	0.47–4.71	0.495
– Senior high school	1.82	0.65–5.08	0.252
– College	1.79	0.52 −6.13	0.276
– Others	0.92	0.07–12.34	0.955
Have HIV manager			
– Yes	3.96	1.17–13.38	0.027
– No	3.14	0.93–10.61	**0**.065
– Not yet (ref.)			
Income			
– Do not have (ref.)			
– < Provision standard salary	1.86	0.88–3.93	0.104
– > Provision standard salary	1.82	0.71–4.71	0.216

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval.

Discussion

The national HIV/AIDS strategy to improve health outcomes would not be achieved without proper understanding of the needs of PLWH. This study described the health characteristics, care, and support needed by PLWH, especially in West Java, Indonesia. Based on demographic data, the majority of respondents had HIV for less than five years and exhibited homosexual behaviours. In addition, the majority of PLWH were aged 20–29 years and had never had an HIV test before. In Indonesia, the majority of PLHW are at the productive age of 24–29 years.[16] Additionally, the existence of homosexuality has a long pro-contra history. In the past, a large majority of Indonesians saw this practice as a taboo due to religious beliefs that considered it a sinful act.[17]

We also found a low awareness of the respondents to undergo HIV testing, and these respondents mainly underwent HIV testing when they were sick. Previous studies reported that participants chose self-prescription as the first choice of treatment for their illness followed by traditional and conventional medicines.[18,19] Therefore, many people visit health care facilities only when their illness worsens or when self-treatment fails. In addition, we also found that media campaigns and community programs about HIV were still not highly prevalent. Previous research stated that media campaigns related to HIV were still low due to the high level of discrimination.[20] This is a problem that must be resolved. The government can disseminate information related to HIV disease in educational and social environments.

Based on health characteristics data, we found that the majority of ART coverage was good. However, there were still PLWH who had not received ART, and there were still PLWH who did not routinely undergo counselling. Thus, adherence to ART regimens was also still lacking. Of course, this needs to be a concern for the Indonesian government, where the ART achievement rate is still 50% in 17 provinces.[21] Previous research has suggested that counselling is a good medium for increasing adherence to ART regimens.[22–24] Thus, the government is expected to increase the role of counsellors to increase ART consumption for PLWH. This notion is confirmed the findings of this study given that the subjects' CD4 counts were less than 500 cell/mm³, and few had undetected viral loads. Studies have suggested that a lower CD4 count was associated with a higher probability of dropping out, which might subsequently contribute to a loss of economic productivity.[25]

Our findings showed that the majority of PLWH reported that they had not been hospitalized for HIV/AIDS-related conditions. However, PLWH are also being treated in the hospital due to their declining HIV condition and need to be considered. Many previous studies have reported that ART contributes to a good quality of life and reduces the transmission of HIV.[26,27] Many PLWH use government hospitals for examinations. The hospital offers more complete services, so it becomes a resource for treatment for PLWH. However, we found that the majority of PLWH still used personal payments, and not all of them used health insurance. The Indonesian government states that the cost of PLWH maintenance and control can be assisted by health insurance with a special allocation from the government.[28] Thus, this service can reduce the cost burden for PLWH. Data show that approximately 10% of PLWH still have infectious diseases, such as hepatitis. Previous studies have shown that HIV-positive individuals are more at risk for contracting and developing diseases, such as cardiovascular, metabolic, pulmonary, renal, bone and malignant diseases, compared with HIV-negative individuals.[29,30]

The majority reported that they had not visited any mental health services. Approximately half of those who received mental health services reported "depression" as their main reason. Additionally, approximately half underwent substance abuse counselling. Previous studies reported that many experienced depression, stress, anxiety, lack of social support, and poor coping strategies.[31–35] Stigma and discrimination were regarded as the main causes of their psychological problems, which can lead to low self-esteem, depression, despair, and even suicidal thoughts. These individuals are afraid and ashamed to seek treatment and disclose their status. They mostly talked about HIV with health professionals compared with counsellors and case managers. This finding should represent a call for the government to increase the role of counsellors and case managers. The results of previous studies show that the counsellor and case manager play an important role in improving communication with PLWH for ART regimen continuation and control hospital visits.[36,37]

In this study, we observed a gap between needed care and received care, namely, insurance premiums, emergency financial assistance, nutrition care, and legal services. Insurance is important for PLWH during the treatment and consumption of ARVs. Insurance can reduce the economic and psychological burden of PLWH.[38] Emergency financial assistance was found to represent a gap from the maintenance needed and obtained by PLWH. EFA can be applied for short-term or one-time financial assistance to assist with emergency expenses.[39] In Indonesia, the government has facilitated the use of government health insurance.[40] Furthermore, nutrition care is also a gap accepted by PLWH. PLWH need nutrition care to increase immunity such that CD4 and body mass index (BMI) can increase. Presentation of HIV manager was significantly increased nutritional care among PLWH. Previous research has shown supported this notion.[41] We found legal services, such as health facilities, represent another gap. In West Java, there were significant improvements in widely distributed health care services that offered HIV tests, counselling care, and support. Approximately 180 clinics that offered HIV tests, care, and support. This is quite different from a study in Bandung City, which found that health care services for HIV/AIDS remained limited.[42]

In general, this study is limited to the type of descriptive research that presents data in terms of percentages. Research on a broader scale can provide a detailed description of health care needs among PLWH in Indonesia. In addition, the use of different development and study design approaches can provide more varied information.

Conclusion

This study demonstrated that the identified gaps, such as insurance premiums, emergency financial assistance, nutrition care, and legal services, represent a task that must be addressed by the health workers. The HIV manager was directly correlated to nutritional care among PLWH in this study. Addressing the gap between health care needs and health offered was important to ensure that care was received appropriately. Continuing assessment of health care needs can provide direction to deliver appropriate care and ensure a comprehensive continuum of care for PLWH. Nurses who are commonly as the most proportion of health care workers can take benefit from the study to understand and address the health care needs of PLWH to ensure comprehensive and continuous care. In terms of study design, developmental studies can provide more detailed and varied information about health care needs for the continuum of care among PLWH.

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Disclosure

The authors declare that they have no conflicts of interest in this study.

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