

Psychosocial Well-Being of People Living with HIV/AIDS under Antiretroviral Therapy

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ABSTRACT

Background: Along with many physical issues associated with the HIV/AIDS there are socio-psychological ill-effects including depression, anxiety and stress. The antiretroviral therapy has been successful in prolonging the life but not much information is available on the psychosocial issues and social support from Nepal.

Methods: Sequential explanatory mixed method study design was followed. All the patients undergoing antiretroviral therapy in Bharatpur Hospital above 18 years of age and giving consent to participate were conveniently selected. Validated Nepalese version of Becks Depression Inventory and Becks Anxiety Inventory tool while translated and validated Multidimensional Scale of Perceived Social Support scale was used Purposive In-depth Interview was conducted with open ended questionnaire to obtain qualitative data. Chi-square and logistic regression were used for quantitative analysis while manual content analysis was used to analyze the qualitative data.

Results: The totals of 288 participants were included in the study About 43% had some level of depression, 98% had very low level of anxiety and almost half of the people had high support. In binary logistic regression model, the significant variables were sex, marital status and occupation. Females had 2.622 times more odds of depression than males, the risk of having depression in occupation group- agriculture and household was 3.661 and 2.508 time more as compared to jobholder respectively. Similarly, single individuals had 2.815 higher odds of depression than couples. Emotional disturbances and fear of vulnerability, stigmatization, dealing with difficulties were the major problems in these groups with good familial and organization support.

Conclusions: Clinicians, health and AIDS professionals should routinely screen for depression among other interventions to promote psychological health in HIV/AIDS-positive individuals.

Keywords: Anxiety; depression; HIV/AIDS; perceived social support.

INTRODUCTION

Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) remains a significant public health challenge in low- and middle-income countries, ¹ with prevalence of 0.206% in Nepal.² HIV can contribute to depression leading to high-risk behaviours and psycho-social issues,³⁻⁵ while anxiety and social support are other major determinants of psychosocial well-being in People Living with HIV (PLHIV).⁶

Depression has been commonly reported among PLHIV over apparently healthy populations⁷ along with anxiety with estimated prevalence of 38%.⁸ Unfortunately, there has been frequent reports of death anxiety among PLHIV

associated with symptoms of post-traumatic stress disorder and lack of social support.⁸⁻¹⁰ Social support is reported to increase psychosocial wellbeing of PLHIV.^{11,12} It has also been widely recognized that community-based support is vital for issues of quality of life, strategies to improve social support and encouragement of interventional programs.¹³

METHODS

The study was conducted among all the PLHIV above 18 years of age, registered and attending the Anti-Retroviral Therapy (ART) clinic of Bharatpur Hospital from October 2015 to December 2016. Ethical approval as taken from the Institutional Review Board of the

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hospital and written consent was taken from the study participants. This clinic is situated in Chitwan district of Bagmati Province (previously Central Development Region) of Nepal and covers the patients from its periphery districts. There are estimated 2000 PLHIV in this district and includes Female Sex Workers (FSW) and their clients; Injection Drug Users; migrant workers and their spouse; and few male who had sex with male (MSM). The reported number of PLHIV in the Chitwan district is 1312. Those PLHIV with severe illness, chronic illness, disabilities, with severe life events within last six months, who were commercial sex workers, who were transgender and those not willing to participate in the study were excluded from the study.

This was a sequential explanatory mixed-method study design following the Quan-Qual model. A cross-sectional study was used to obtain quantitative data followed by sequential explanatory approach to obtain qualitative data. A convenient sampling method was used to recruit participants for collecting quantitative data. The selection of the participants for qualitative data was done purposively to include various socio-demographic variants.

The sample size of $n=257$ was determined for the quantitative analysis using the formula for cross-sectional study considering 99% confidence interval, 1% margin of error, known prevalence of HIV in Central Nepal of 0.35% according to survey conducted by AIDS Healthcare Foundation (AHF Nepal) and ART centre¹⁴ and 10% non-response error. The sample size for qualitative part of the study was 5 considering the representativeness of the study population.

Data collection was performed according to the schedule of the ART clinic. There were two parts in data collection namely quantitative part and the qualitative part.

A data collection sheet was developed which included four parts. The first part was developed with questions for socio-demographic information that was translated into Nepali language. The second, third and fourth part consisted of scales for measuring depression, anxiety and social support, respectively. Depression was measured using validated Nepali version of Becks depression Inventory (BDI)¹⁵ that consisted of 21 self-administered questions. The score was classified as normal (1-10), mild mood disturbance (11-16), borderline clinical depression (17-20), moderate depression (21-30), severe depression (31-40) and extreme depression (>40). Similarly, anxiety was measured using validated Nepali version of Becks Anxiety Inventory (BAI)¹⁶ which also consisted of 21 self-administered questions. The

anxiety score was classified as low (0-21), moderate (22-35) and potential cause for concern (≥ 36). Social support was determined by 12 items multidimensional scale of perceived social support (MDPSS).¹⁷ This tool was translated in Nepali language and pre-testing was done in 5 participants from the ART clinic. The mean score was obtained for each participant by dividing the total score by 12. The support score was classified as low (1-2.9), moderate (3-5) and high (5.1-7).

This part of the study was explored through in-depth face-to-face interview on different psychosocial parameters, mainly depression and social support. The interview was conducted in Nepali language confidentially in a separate room using guiding and probing questions till the saturation point was met. Audio recordings were transcribed verbatim and translated into English which was validated by two different people who expertise in the translation.

Variables in the four parts of the data collection sheet as described in data collection section above were subjected to inferential statistics. Normality test was performed for all numeric variables to confirm central tendency and dispersion as well as to differentiate the types of statistical tests necessary for binary logistic regression. Depression and anxiety categories were re-categorised for statistical analysis. The association of demographic variable with depression and anxiety was statistically determined using Chi-square test. The same test was performed to assess the association of depression and anxiety with social support. Variables that were statistically significant on bivariate analysis were entered into binary logistic regression analysis ($p < 0.10$) for predicting factors influencing depression and anxiety. For all the statistical test p -value < 0.05 was considered as significant. The data was analyzed using SPSS version 16.

Manual qualitative content analysis was used to analyse the data. The written transcripts were then reviewed by the investigator for accuracy by listening to the tapes and thereby reading the transcripts. Individual experience regarding depression and social support were captured among the participants using audiotapes, completed interviews were transcribed accurately and verbatim was translated from Nepalese to English. Manual qualitative content analysis was used to evaluate the data. After each transcript was reviewed, the data was open coded line after line and was analyzed until the significant content areas, meaningful units and codes were generated. Once the process was completed similar content emerging from the analysis was grouped into various categories and subcategories.

RESULTS

The total of 288 participants living with HIV/AIDS on regular HIV/AIDS care in the ART Clinic of X hospital were included in the study. The age of the PLHIV included in the study ranged from 19-72 years with the median±IQR age of 38 years. More than one-third belonged to Brahmin/Chhetri (35.8%) caste while another one-third belonged to Janajatis (35.4%). Thirty-five percent earned their living by agriculture. Nearly one-third were illiterate, who had never attended school (Table 1).

Table 1. Sociodemographic characteristics (n=288).

Variables	n (%)
Sex	Male 138 (47.9)
	Female 150 (52.1)
Marital Status	Married 209 (72.6)
	Unmarried 10 (3.5)
	Divorced 3 (1.0)
	Widow 66 (22.9)
Number of family members of PLHIV	≤4 168 (58.3)
	>4 120 (41.7)
Ethnicity	Brahmin/Chhetri 103 (35.8)
	Dalit 38 (13.2)
	Janajati 102 (35.4)
	Muslim 5 (1.7)
	Madhesi 3 (1.0)
	Newar 12 (4.2)
	Other 25 (8.7)
Religion	Hindu 225 (78.1)
	Buddhist 35 (12.2)
	Christian 21 (7.3)
	Muslim 4 (1.4)
	Other 3 (1.0)
Occupation	Agriculture 102 (35.4)
	Employed 71 (24.7)
	Business 39 (13.5)
	Household 50 (17.4)
	Social work 2 (0.7)
	Other 24 (8.3)
Education	Illiterate 91 (31.6)
	Primary 79 (27.4)
	Pre-secondary 20 (6.9)
	Secondary 60 (20.8)
	SLC 26 (9.0)
	Certificate PCL 10 (3.5)
	Bachelor and higher 2 (0.7)
Duration of illness	≤ 1 Year 38 (13.2)
	>1 Year 250 (86.8%)

The psychosocial parameters included depression, anxiety and perceived social support which was measured by Becks Depression Inventory, Becks Anxiety Inventory and Multidimensional Scale of Perceived Social

Support respectively. The frequency and corresponding percentage were summarized (Table 2).

Table 2. Psychosocial parameters in person living with HIV (n=288).

Psychosocial parameters in PLHIV	n(%)
Level of depression (BDI)	Normal 164 (56.9)
	Mild mood disturbance 59 (20.5)
	Borderline depression 24 (8.4)
	Moderate depression 37 (12.8)
Level of anxiety (BAI)	Severe depression 4 (1.4)
	Very low anxiety 28 (9.7)
	Moderate anxiety 1 (0.3)
Level of perceived social support (MDPSS)	Severe anxiety 3 (1.0)
	Low support 20 (6.9)
	Moderate support 13 (4.9)
	High support 13 (4.5)

Bivariate analysis showed that depression (Yes/No) was significantly associated with sex, occupation, marital status and level of education of PLHIV. Likewise, association between depression and occupation suggests that PLHIV engaged in job and business were less likely to be depressed than PLHIV who were engaged in agriculture, household and other occupation (p=0.001). The association between depression and marital status suggests that couple were less likely to be depressed than single one (p<0.001). Likewise, association between depression and education level demonstrated that higher the education lesser the possibly to be depressed (p=0.005). However, age, ethnicity, family type and duration of therapy were not statistically significant with the depression. There was statistically no significant association between level of anxiety and different socio-demographic characteristics of PLHIV. Also, there was statistically no significant association between level of social support and different socio-demographic characteristics of PLHIV. There was statistically significant association between depression and social support scale at p=0.011 which indicates that

PLHIV who received higher support were less likely to be depressed than those who received lower level of support (Table 3).

Table 3. Association between depression, level of anxiety and social support with demographic characteristics (n=288).

Socio-demographic characteristics		Depression		Level of anxiety			Social Support			
		Yes	P-value	Very low	Severe	P-value	Low	Moderate	High	P-value
Age (in years) (Median, IQR)		38.50 (33, 47)	38 (35, 44)	0.729*	38 (33.50, 45)	32 (23, 32)	0.144	20(30,50)	138(24,56)	130(27,49)
Sex	Male	100 (72.5)	3 (27.5)	<	137 (99.3)	1 (0.7)	1.000	9 (6.5)	61 (44.2)	68 (49.3)
	Female	64 (42.7)	8 (57.3)	0.001**	148 (98.7)	2 (1.3)		11 (7.3)	77 (51.3)	62 (41.3)
Ethnicity	Brahmin/Chhetri	59 (57.3)	4 (42.7)	0.542	103 (100)	0 (0)	0.096	9 (8.7)	51 (49.5)	43 (41.7)
	Dalit	20 (52.6)	1 (47.4)		38 (100)	0 (0)		6 (15.8)	18 (47.4)	14 (36.7)
	Janajati	57 (55.9)	4 (44.1)		101 (99)	1 (1)		4 (3.9)	45 (44.1)	53 (52)
	Muslim	3 (60)	2 (40)		5 (100)	0 (0)		-	3 (60)	2(40)
	Madhesi	3 (100)	0 (0)		3 (100)	0 (0)		-	2 (66.7)	1 (33.3)
	Newar	5 (41.7)	7 (58.3)		11 (91.7)	1 (8.3)		-	4 (33.3)	8 (66.7)
	Others	17 (68)	8 (32)		24 (96)	1 (4)		1 (4)	15 (60)	9 (36)
Occupation	Agriculture	48 (47.1)	5 (52.9)	0.001*	102 (100)	0 (0)	0.121	7 (9.9)	54 (52.9)	41 (40.2)
	Job holder	54 (76.1)	1 (23.9)		69 (97.2)	2 (2.8)		3 (4.2)	30 (46.2)	38 (53.5)
	Business	26 (66.7)	1 (33.3)		39 (100)	0 (0)		1 (2.6)	18 (46.2)	20 (51.3)
	Household	24 (48)	26 (52)		50 (100)	0 (0)		7 (14)	26 (52)	17 (34)
	Others	12 (46.2)	1 (53.8)		25 (96.2)	1 (3.8)		2 (7.7)	10 (38.5)	14 (53.8)
Marital status	Couple	133 (63.6)	7 (36.4)	<	206 (98.6)	3 (1.4)	0.564	5 (6.3)	38 (48.1)	36 (45.6)
	Single	31 (39.2)	4 (60.8)	0.001**	79 (100)	0 (0)		15 (7.2)	100 (47.8)	94 (45)
Educational level	Illiterate	44 (48.4)	4 (51.6)	0.005*	90 (98.9)	1 (1.1)	0.201	10 (11)	48 (52.7)	33 (36.3)
	Primary	37 (46.8)	4 (53.2)		78 (98.7)	1 (1.3)		7 (8.9)	36 (45.6)	36 (45.6)
	Secondary	56 (70)	24 (30)		80 (100)	0 (0)		3 (3.8)	40 (50)	37 (46.2)
	SLC	18 (69.2)	8 (30.8)		26 (100)	0 (0)		-	9 (34.6)	17 (65.4)
	PCL and Above	9 (75)	3 (25)		11 (91.7)	1 (8.3)		-	5 (41.7)	7 (58.3)
Family member	≤ 4 member	92 (54.8)	7 (45.2)	0.376	166 (98.8)	2 (1.2)	1.000	14 (8.3)	74 (44)	80 (47.6)
	> 4 member	72 (60)	48 (40)		119 (99.2)	1 (0.8)		6 (5)	64 (53.3)	50 (41.7)
Duration of illness	≤ 1 year	18 (47.4)	2 (52.6)	0.201	37 (97.4)	1 (2.6)	0.347	3 (7.9)	20 (52.6)	15 (39.5)
	< 1 year	146 (58.4)	1 (41.6)		248 (99.2)	2 (0.8)		17 (6.8)	118 (47.2)	115 (46)

*Mann-Whitney U test, *Significant at p<0.05, **Significant at p<0.001

Binary logistic regression showed that sex (female), occupation (agriculture and household) and marital status (single) as a statistically significant predictors of depression. Females had 2.622 times (with 95% CI, 1.467 to 4.684) more

odds of depression than males (at $p < 0.001$). The risk of having depression in occupation group- agriculture was 3.661 times (with 95% CI, 1.770 to 7.571) more as compared to jobholder (at $p < 0.001$). Similarly, risk of having depression in occupation group- household was 2.508 times (with 95% CI, 1.073 to 5.859) more as compared to jobholder (at $p < 0.05$). Similarly, single individuals had 2.815 higher odds (with 95% CI, 1.493 to 5.859) of depression than couples (at $p = 0.003$) (Table 4).

Table 4. Binary logistic regression model for predicting depression (n=288).

Variables	B(SE)	OR (95% CI)	P-value
Female	0 . 9 6 4 (0.296)	2.622 (1.467 to 4.684)	0.001*
Agriculture	1 . 2 9 8 (0.371)	3.661 (1.770 to 7.571)	0.001*
Household	0 . 9 1 9 (0.433)	2.508 (1.073 to 5.859)	0.034*
Single	1 . 0 3 5 (0.323)	2.815 (1.493 to 5.306)	0.003*

Model $\chi^2 < 0.001$, 335.726 (-2LL), 0.168 (Cox & Snell R^2) and 0.225 (Nagelkerke R^2), Hosmer and Lemeshow test: $P = 0.305$

The results in the table 4 reveals that the value for Cox & Snell R^2 & Nagelkerke R^2 are 0.168 and 0.225 respectively suggesting that between 16.8% and 22.5% of the variation in response variable (Depression) is explained by the set of independent variables (Female, Agriculture, Household, Single) used in the table. Here the Hosmer and Lemeshow P value is 0.305 which shows that the model is adequately fit.

Of the total 288 participants, total 10 participants were interviewed purposively; however, due to the inadequacy of information only 5 respondents were used for the qualitative analysis purpose. The qualitative analysis ultimately identified seven themes among which five of them fit into the findings of quantitative data. Those seven themes were depression, emotional disturbances and fear of vulnerability, stigmatization dealing with difficulties, social support, family support and organizational support.

Once the diagnosis was confirmed as HIV/AIDS, all respondents were disturbed and had a negative feeling towards life. Almost all respondents wanted to commit suicide thinking that they will not live longer whereas

some of them have a feeling of denial to accept the result.

R-1: "I felt very bad; my dreams were shattered and completely devastated. I also tried to commit suicide. I took lot of alcohol and was careless and didn't bother about my life thinking that I would die very soon." (Male, married, employed).

With the result being HIV positive, respondents also wanted to be isolated from the community with the fear of being hated.

R-5: "I was worried about what community would tell and react, so preferred to die than to live. I was also scared to go back to my village, so I wanted to commit suicide." (Male, divorced, unemployed)

Stigma is a major concern for both the HIV infected person as well as to the family members. And it is because of the thought and perception we have hold in us regarding HIV/AIDS infected people. While interviewing, it was found that majority of the respondents have not disclosed about their HIV positive status to friends and other community circle.

R-4: "I didn't disclose to other people than family. But they came to know from my sister-in-law. I didn't disclose to people because they may think bad about me. Even some people talk to me as they should not sit close to me. Some also blamed that as I am affected, so I will also transmit them. I feel they will not come to see when I am dying due to my disease." (Female, married, household)

And the reason behind it was the fear of rejection from the community people, behavioural changes, and fear of contagion.

The major difficulties faced by the respondents were physical and social problems whereas some has also faced financial issues in uplifting their health status. These problems faced by respondents were also considered to be the major factor for feelings of worthlessness and depression. The physical problems expressed by respondents were "being weak, dizzy; easily fatigued, unable to work efficiently as before, frequently falling sick" and major social problems were "difficulty in taking medicine outside house and in-front of other people". On contrary to such social problem one of the respondents also faced some discrimination in a social place.

R-2: "Yes, I face some social problem especially while taking medicine in-front of people. I also suffer from

physical problem like weakness, not able to work efficiently as I used to do before". (Female, widow, social volunteer)

R-4: "I feel difficulty to express my health problem, because I often fall sick and face some physical problem like weakness, dizziness. So, I lie to people saying that I have high blood pressure." (Female, married, household).

Social support means getting support from family, friends, community people and the organization working for PLHIV. While interviewing the respondents, variation in the support from family was noticed. Some family members were very supportive to the respondents and encouraged them to live for their child.

R-3: Family was very supportive. They told not to worry and take tension. He was very supportive and encouraged me to live. They also suggested for proper treatment for long term survival. (Female, widow, employed)

On contrast, some respondents' family members had fear regarding social stigma they have to face in near future for which they isolated them from their native community.

R-1: "My brother was very supportive but my mother was frustrated. She said she wanted to commit suicide. Other family members also didn't accept wholeheartedly. They didn't want me to stay at home. Their behaviour was changed, so I started to live in a rented house far away from home." (Male, married, employed)

Organizations that are working to serve people living with HIV/AIDS have played a vital role in reducing the mental illness among them. All of the respondents have received support from different organizations. According to their response, the organizations that have supported them have changed their attitudes and suicidal thoughts.

R-1: "Yes, I got support from 'Nawakiran'. This organization helped me to get out of my suicidal thoughts. They have motivated me to live. It was a very good experience with the people in that organization. Today I am alive just because of them." (Male, married, employed)

DISCUSSION

Psychosocial issue is a major concern in PLHIV and issues like depression and anxiety are found to be higher in PLHIV in these group.^{18,19} In this study, regarding the

socio-demographic profile the median age was 38 years, majority (52.1%) were females, 72.6% were married, 35.8% were Brahmin/Chhetri and 78.1% were following Hindu religion, 35% earned their living by agriculture and 68.4% were literate. Assessment of the depression revealed that 43.1% had depression (mild, borderline, moderate and severe). The qualitative findings of this study also revealed that, majority of the interviewees underwent various emotional disturbances like feeling of worthlessness, suicidal ideation, carelessness which support the quantitative findings that depression is common in PLHIV. Similar study²⁰ conducted in India also revealed prevalence rates of depression among HIV sero-positive individuals to be ranged from 10% to 40%. In other similar studies,^{21,22} it was found that prevalence of depression to be 47% in Uganda and 45% in USA, respectively.

Beside this, during interviews other factors like stigma problem, different form of difficulties faced during daily life activities were identified which also contributed depression among PLHIV. Considering, the statistically significant predictors of depression in logistic regression analysis, significant association of depression was found with sex, occupation and marital status. The statistically significant association between depression and sex suggest that females ($p < 0.001$) were more likely to be depressed, likewise association between depression and occupation suggest that patient involved in agriculture ($p = 0.001$) and household ($p < 0.05$) were at risk to get depression, whereas the association between depression and marital status showed that single ($p < 0.001$) were at high risk to get depressed. The finding of this study is consistent with the study²³ conducted in Indian people which showed the association between individual occupation and depression. Further, around 35% of the respondents (34.6%) were unemployed. This indicates that people who were not working were more likely to be depressed than those who had employment of some kind. Another study²⁴ from Nigeria showed that PLHIV who were unemployed were three times more depressed as compared to those who were employed (OR:2.94, $p < 0.04$). These findings add to the existing evidence that unemployment predicts depression.²⁵

The qualitative content analysis in this study concluded that interviewees from various socio-demographic background are equally vulnerable to get depression but there are many factors like good coping resources, well established status in society, good family support, strong financial status, good organizational support which has not been completely assessed by this study which may help PLHIV to overcome their disturbed mental status. The findings of this study are consistent with the study²⁶ conducted in East Ethiopia on estimating prevalence of

depression and associated factors among adult patients seeking ART treatment which showed 45.8% prevalence of depression among PLHIV. The significant association of depression was found with being male, being widowed, monthly income of 500-1000, the last scheduled clinic visits in a month, last time missed any medication, and teased, insulted or sworn at and gossiped. Male which is one of the significant predictors contradicts the findings of this study which shows female to statistically significant then male whereas marital status as widowed being significant is consistent with the findings of this study.

Another study²⁷ conducted to assess psychological, social, and familial problems of people living with HIV/AIDS in Iran concluded that depression, anxiety, frustration, social isolation, relationship problems, and fear due to the social stigma were the major problem faced by PLHIV.

Regarding the prevalence of anxiety in this study, majority of the PLHIV showed low anxiety level and no association among socio-demographic variables. Some studies^{25,27-29} conducted to assess the prevalence of anxiety in PLHIV suggest a high burden of anxiety disorders among PLHIV which contradicts the findings of this study and this may be due to longer period of illness, information about the illness and its treatment modalities and well-established organizational support from various organization working for individual with HIV/AIDS.

Social support is expected to be beneficial for all individuals with HIV/AIDS. Considering the evaluation of perceived social support in this study, majority of the individuals have received moderate to high level of support. Socio demographic characteristics showed no significant association with the level of perceived social support but there was significant association among depression and perceived social support which indicates that PLHIV who received higher support were less likely to be depressed than those who received moderate and low level of support. This finding is supported by a study²⁹ which states that both instrumental and emotional support are crucial in helping HIV positive and their caregivers which makes them feel less anxious or depressed regarding their condition. Many theory and empirical evidence also suggest that social support may impact health which may be biological, psychological and behavioural processes that include promoting self-esteem, encouraging positive health behaviours, and increasing access to resources that help cope with stress.¹²

Understanding the viewpoint of the respondents

regarding support (family and organizational) during the in-depth interview, variation in the family support has been noticed whereas full support from different organization working for PLHIV has been concluded. The qualitative findings of this study are consistent with the study¹⁵ conducted in Nepal in 2010 which concluded that non-family support network was greater than family support network and community-based support is vital for issues of quality of life among PLHIV. Another study³⁰ also concluded that PLHIV who are affiliated with any social organization reported higher quality of life in the social relationships domain than those who were not affiliated. This may indicate the role of social organizations in providing essential social networks that act as a platform through which various form of social support can be extended to PLHIV.

We recruited our participants from among PLHIV attending the ART clinic. This sample may not be truly representative of the population of PLHIV in the district, as they were more likely to be health conscious and attended clinic regularly.

CONCLUSIONS

Depression is common among PLHIV and social support from family and friends are significantly associated with the quality of life they live. Clinicians should routinely screen their patients for depression whereas additional support from family and community decreases any burden of psychosocial issues like depression. The activities and programs addressing the social support can be an important contribution to PLHIV in order to improve their well-being in longer run.

The government should also consider factors that could improve the well-being of PLHA in addition to the provision of antiretroviral drugs. Public health personnel and AIDS professionals may consider further interventions to promote psychological health in HIV/AIDS-positive individuals. More attention should be paid to the social environment of individuals diagnosed with HIV as the quality of social relationships may be particularly important for successful psychological adaptation to HIV.

CONFLICT OF INTEREST

None.

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