

## 論文の内容の要旨

論文題目 **Community home-based care for people living with HIV in Nepal: Its role in improving mental health and health-related quality of life**

(ネパールにおける HIV 陽性者への地域在宅ケア：精神保健と健康関連 QOL 向上に対する役割)

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## Abstract

### Background

HIV continues to be a global health problem and many of the HIV-positive people face challenges regarding their health outcomes. In 2014, 37 million people were living with HIV globally. The world has already achieved the AIDS related target of the Millennium Development Goal six as 15 million people received anti-retroviral therapy (ART) by March 2015. They live longer than before when they have better access to ART. At the same time, their HIV infection has transformed to a chronic condition and many of them endure poor psychosocial condition. They have a higher prevalence of mental health disorders and substance use compared with the general population. Such conditions may lead to negative consequences on their health outcomes.

Mental health disorders and substance use increase the risk of non-adherence to ART. HIV-positive people who experience depression and anxiety may endure poor satisfaction or trust on health care providers and treatment leading to non-adherence to ART. Also, those who have high level of stress may not seek adequate social support from caregivers and health providers, which may worsen their ART adherence. Substance use also increases stress and induces poor coping skills for the side effects of treatment resulting in non-adherence to ART.

People living with HIV tend to have poor health-related quality of life (QOL) when they experience mental health disorders and engage in substance use. For example, they perceived their poor psychological domain of QOL when they experienced mental health disorders in the United States. Also, depression and high level of stress negatively influenced all domains of QOL among HIV-positive people in Hong Kong. Moreover, substance users may experience poor psychological and physical domains of QOL as they poorly engage in HIV services.

HIV-positive people may experience both mental health disorders and substance use. For instance, depressive HIV-positive people are more likely to develop the risk of substance use compared to those who do not experience depression. On the other hand, those who engage in substance use are at risk of chronic stress.

To improve the mental health of HIV-positive people, psychosocial support may be an integral part of HIV care and support services. To address the need for psychosocial support, the World Health Organization (WHO) provided a guideline to manage their psychological and social problems. The guideline recommends that HIV-positive people, their families, and caregivers should be provided psychosocial support at the family and community level.

The community home-based care program was found to be effective in improving health outcomes of HIV-positive people in Vietnam, Uganda, and China. In Vietnam, psychosocial support delivered through peer was found to improve QOL of HIV-positive people. However, the program did not include health workers and social workers as service providers. Also, another study in Uganda has shown that the home-based psychosocial support delivered through field health workers improved ART adherence. However, the support team did not include HIV-positive peers and social workers. Moreover, home-based psychosocial support by nurse improved ART adherence in China, however, the program did not include services through HIV-positive peer and social worker. Evidence is not available about the roles of a community home-based care program which includes all essential components of continuum of care such as psychosocial support/counseling, peer counseling, ART adherence support and counseling, and referral for further care. Additionally, no study evaluated the effects of a community home-based care program with an interdisciplinary team of service providers to improve mental health, ART adherence, and QOL of HIV-positive people.

In Nepal, HIV-positive people have poor access to screening and treatment services of mental health problems, as these services are not integrated into HIV service. They have a high prevalence of depression of 25% and they do not have adequate access mental health services and psychosocial support. Additionally, many HIV-positive people who use substances are at more risk of having poor access to mental health services in the country.

Some of HIV positive-people engage in a community home-based care program to receive psychosocial support and basic health care at their home. The program ensures voluntary enrollment of HIV-positive people, maintains a confidential service, incurs low cost, reduces the burden of physicians and improves support from family and care givers. The intervention is distinctive in its characteristics because it includes an interdisciplinary team of service providers comprising of a community health worker, a HIV-positive person, and a social worker. Involvement of HIV-positive people is one of the essences of the program that increases accountability of HIV-positive people as service provider and as a beneficiary.

The program involves psychosocial support and counseling to HIV-positive people, their family, and caregivers to respond and overcome their psychological symptoms. It also comprises peer counseling especially to substance users, ART adherence support and counseling, basic health care, and referral for further care according to the needs of HIV-positive people. However, since the inception of this program, no study has examined its roles in reducing the magnitude of depressive symptoms, anxiety and stress levels, substance use, and non-adherence to ART among them in Nepal and globally. Moreover, evidence is not available about its roles in improving QOL of HIV-positive people.

Therefore, I examined the roles of a community home-based care program in reducing their mental health disorders, substance use, and non-adherence to ART. Second, I examined its roles in improving their QOL.

### **Methods**

I conducted this prospective cohort study among HIV-positive people in Nepal. The country had a population of 28 million including 39, 249 HIV-positive people in 2014. Approximately, 11, 089 of them were receiving ART at the time of data collection.

I adopted convenience sampling method to select the study districts and participants. Of total 75 districts, 23 districts had relatively higher prevalence of HIV in Nepal. Of 23 districts, 12 had a community home-based care program and the remaining 11 districts had mutual support groups for HIV-positive people. I purposively selected participants for the intervention group from three districts out of 12, which had a community home-based care program. For the control group, I purposively selected participants from two districts out of 11, which had mutual support groups of HIV-positive people. In total, I recruited 682 (intervention: 344 and control: 338) participants in this study.

For the intervention group, the program's team performed a monthly home visit to provide psychosocial support/peer counseling, ART adherence support and counseling, essential health care, and referral for further care. The team also made additional home-visits when they were requested. The participants did not enroll in the program before the intervention.

I included those who took ART for at least one year. I excluded those who were less than 18 years old and those who lived less than a year in the selected districts. I recruited and trained six research assistants for data collection. I conducted pre-testing among 48 HIV-positive people in Kathmandu Valley. I conducted baseline data collection in February and March 2015 and follow-up six months later.

I measured participant's sociodemographic characteristics, HIV-clinical staging, depressive symptoms, anxiety, stress levels, and substance use. I measured depressive symptoms using Center for Epidemiological Study Depression Scale (CESD). Participants reported their experience of anxiety using Composite International Diagnostic Interview-Short Form (CIDI-SF). I measured stress levels using perceived stress scale (PSS). I considered non-adherence to ART when participants missed at least two pills in the past month of the data collection. I measured six domains of QOL (physical, psychological, level of independence, social relation, environmental, and spiritual) using WHOQOL-HIV BREF scale.

I used generalized estimating equation (GEE) to examine the average population effects of the intervention on the outcome variables after six months of follow-up. For GEE analysis, I developed five separate GEE models to examine the roles of a community home-based care program for five outcome variables. The variables included depressive symptoms, anxiety, stress levels, substance use, and non-adherence to ART. In all models, I controlled for age, gender, education, marital status, employment status, HIV-clinical staging and presence of physical symptoms.

Furthermore, I examined the roles of the intervention on the sixth outcome variable QOL. I used six separate GEE models for the six domains of the QOL: physical, psychological, level of independence, social relation, environmental, and spiritual. In each model, I controlled for age, gender, education, marital status, employment status, HIV-clinical staging, physical symptoms, depressive

symptoms, anxiety, stress scores, and substance use. I set the statistical significance level at  $p < 0.05$  and used STATA 12 for data analyses.

### Results

The intervention significantly reduced the magnitude of depressive symptoms by 56% (AOR = 0.44, 95% CI = 0.30, 0.64,  $p < 0.001$ ) and anxiety by 46% (AOR = 0.54, 95% CI = 0.33, 0.88,  $p = 0.014$ ) in the intervention group compared with the control group at six-month follow-up. Also, it significantly reduced stress scores ( $\beta = -3.98$ ,  $p < 0.001$ ) in the intervention group compared with the control group at six-month follow-up. The intervention significantly reduced substance use by 49% (AOR = 0.51, 95% CI = 0.31, 0.81,  $p = 0.005$ ) among the intervention group compared with the control group. After six months of follow-up, men were more likely to use substances (AOR = 1.49, 95% CI = 1.06, 2.10,  $p = 0.045$ ) compared to women.

The program significantly reduced the non-adherence to ART by 38% (AOR = 0.62, 95% CI = 0.41, 0.95,  $p = 0.025$ ) among the intervention group compared with the control group. Participants were more likely to be non-adherent to ART when they experienced depressive symptoms (AOR = 1.47, 95% CI = 1.04, 2.07,  $p = 0.025$ ). Increased in stress scores were positively associated with non-adherent to ART (AOR = 1.05, 95% CI = 1.03, 1.08,  $p < 0.001$ ). It also improved their QOL for physical ( $\beta = 0.35$ ,  $p = 0.035$ ), psychological ( $\beta = 0.48$ ,  $p = 0.001$ ), level of independence ( $\beta = 0.60$ ,  $p < 0.001$ ), social relation ( $\beta = 0.70$ ,  $p < 0.001$ ), environmental ( $\beta = 0.78$ ,  $p < 0.001$ ), and spiritual ( $\beta = 0.60$ ,  $p < 0.001$ ) domains.

### Conclusions

This study provided the additional evidence to show the positive outcomes of a community home-based care intervention in reducing anxiety and stress levels along with depressive symptoms, as such evidence is limited. Additionally, as peer counseling was the unique component of this intervention, the intervention reduced substance use among its participants. This study adds the positive effects of such intervention in reducing substance use in LMICs. The intervention was also effective in reducing non-adherence to ART. Moreover, the intervention improved all six domains of QOL which is the novel finding of this study in resource-limited settings. This could be because the intervention incorporates all essential components of continuum of care for HIV-positive people during the home-visit.

The program can be promoted in a large scale to cover those who are enduring mental health problems and substance use. Also, peer support counseling is an essential component of a community home-based care program, more people living with HIV can be reached through their network. This may help people disclose their sero-positive status and engage in HIV services. Moreover, peer support has a potential role to reduce substance use.

An appropriate screening mechanism should be established for these conditions when they seek health services. Screening may help the health service providers deliver the appropriate treatment and referral services for these conditions. At the same time, the service providers should be trained on basic health services for mental health disorders and substance use.

The community home-based care program was effective to improve mental health and QOL of HIV-positive people. The results highlight the need to enroll more HIV-positive people in the program towards addressing mental health disorders and substance use. As these conditions remains challenges on adherence to ART, the agencies providing ART services should integrate a community home-based care program in their services. To widen the coverage of the program, it should be scaled up and integrated at all levels of health system from the primary health care facilities to national level.

To sustain the services, a basic training should be provided about the community home-based care. It should include more HIV-positive people, social workers, and community health workers. Moreover, a referral mechanism should be established to promote access to mental health care. Such referral network should be strengthened to work as a linkage between the community level service providers and specialists. Furthermore, the program can be replicated in other countries facing similar problems as Nepal to improve the mental health, ART adherence, and QOL of HIV-positive people.