論　文　の　内　容　の　要　旨

論文題目　The Impact of Livelihood Program on Psychological, Social and Living Aspects among People Living with HIV in Cambodia

（カンボジアにおける Livelihood プログラムの HIV 陽性者の心理社会的側面および生活面に与える影響）

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Introduction

While HIV prevention and care for HIV-positive people have improved, psychological symptoms and social problems are major concerns for people living with HIV (PLHIV) on antiretroviral therapy (ART). Depression is reported to be the most prevalent mental health problem among PLHIV, and this group are two to four times more likely to be diagnosed with depression than populations without HIV. Depression is associated with not only with poor adherence to ART, but also with more rapid HIV disease progression and lower quality of life. A vicious cycle between HIV infection and poverty increases the vulnerability of HIV affected households to economic difficulties. Moreover, it is reported that food insecurity, which is one of multiple dimensions of poverty, has been associated with poorer adherence to ART and HIV treatment outcomes, and increased mortality among PLHIV. A medical approach is not sufficient to support PLHIV dealing with these multifaceted problems. Therefore, several countries have implemented livelihood programs for PLHIV to improve their economic conditions and food insecurity. Social support for PLHIV provided by livelihood programs might be useful to improve their mental health and slow the progression to AIDS.

In Cambodia, being diagnosed with HIV still has a big socioeconomic impact on PLHIV and their families. HIV-affected households had lower income per capita and were 1.7 times more likely to live below the poverty line than non HIV-affected households. HIV-affected households were more likely to experience food insecurity, and over half of them received food support compared to only 4% of non HIV-affected households. Although livelihood programs, which are necessary to improve the living conditions of PLHIV, have been implemented extensively in Cambodia, no studies have assessed their psychosocial impacts.

Objectives

The objectives of the study are:

1. To examine the level of depression symptoms, social support and food insecurity experienced by PLHIV in Cambodia;
2. To identify the factors associated with depression symptoms, social support and food insecurity among PLHIV;
3. To investigate the associations between participation in the livelihood program and 1) depression symptoms, 2) social support and 3) food insecurity among PLHIV;

4. To determine the effect of the livelihood program on depression symptoms, social support and food insecurity among PLHIV.

Methods

This quasi-experimental, nonequivalent comparison group study was conducted in Cambodia, in collaboration with a Khmer HIV/AIDS NGO Alliance (KHANA), as part of an evaluation study for the on-going KHANA livelihood program. Data were collected in six provinces: Battambang, Kampong Cham, Kampong Speu, Pursat, Siem Reap and Takeo from August to September, 2014. The sample, taken from KHANA's database indicated that there were 981 PLHIV in six provinces who participated in the livelihood program (the intervention group) and there were 5,549 PLHIV who were non-participants of the livelihood program (the comparison group). Health centers with more than 10 PLHIV registered were separately selected from each list for the intervention and comparison groups to fulfill the required sample size in each province. Recruitment was conducted by KHANA's collaborating local NGOs, and they contacted and recruited PLHIV in the samples for both groups. Inclusion criteria for study participation at recruitment were those who: 1) were HIV seropositive and had been living with HIV for more than one year since diagnosis; 2) aged 18 years and older; 3) understood the Khmer language; 4) were resident in the study areas for more than one year; 5) gave written informed consent for voluntary participation; and 6) for the intervention group, had been enrolled in the livelihood program for more than one year. All the identified PLHIV who met the inclusion criteria for the study participation at the selected health centers were considered eligible for the study. Finally, data from 357 PLHIV in the intervention group and 328 PLHIV in the comparison group were used for analyses. All study participants were interviewed using a structured Khmer questionnaire through a face-to-face interview by trained interviewers after obtaining informed consent.

Multiple logistic regression analyses were carried out to examine the associations between participation in the livelihood program and depression symptoms, social support and food insecurity. Covariates were program participation status, age, gender, education, marital status, monthly household income per capita, debt, ART status, length of time since HIV seropositive diagnosis, receipt of food assistance, internalized HIV-related stigma and self-esteem. All the multiple logistic regression analyses were estimated using cluster-robust standard error to control for bias that could be caused by the differences in provinces. To analyze the factors associated with depression symptoms, three models were tested. As well as the covariates stated above, food insecurity was added in Model 2, and social support was added in Model 3. Propensity score methods further examined the effect of the livelihood program on depression symptoms, social support and food insecurity. All statistical tests were performed using STATA SE Version 12 for Windows.

Depression symptoms were measured by the 15-item Cambodian version of the Hopkins Symptom Checklist for Depression symptoms (HSCL-D). Food insecurity was assessed by the Household Food Insecurity Access Scale (HFIAS). Social support was assessed by the 19-item Medical Outcome Study Social Support Survey (MOS-SSS). The six-item Internalized AIDS-Related Stigma Scale (IA-RSS) was used to measure HIV-related internalized stigma. Self-esteem was measured by the 10-item Rosenberg Self-Esteem Scale (RSES).

The study protocol was reviewed and approved by both the National Ethics Committee for Health Research at the Cambodian Ministry of Health and the Research Ethics Committee of the Graduate School of Medicine at the University of Tokyo.

Results

The intervention group included 357 PLHIV and the comparison group included 328 PLHIV. Among 357 participants in the livelihood program, 46.8% of them had participated in the program from one to two years, and 53.2% of them had participated from two to four years. The mean age of the intervention group was 44.5 years, of whom 73.7% were female. The mean age of the comparison group was 43.4 years, of whom 62.5% were female. The difference in the proportion of females in the intervention and comparison group was found to be significantly different (p=0.002). In both groups, more than half the study participants were married or cohabited with a partner, and around 80% had at least some formal education. The median monthly household income per capita at the time of study was US$ 21.9 for the intervention group, and US$ 18.8 for the comparison group. Over 70% of the study participants in both groups had debt during the past 12 months. As for food assistance, 38.1% in the intervention group and 46.0% in the comparison group received some kind of food assistance, and these rates were significantly different between the groups (p=0.035). In both groups, the median of time since HIV seropositive diagnosis was 8 years, 98% of the study participants were on ART at the time of survey, and the median IA-RSS score was 3. The mean RSES scores were 28.7 in the intervention group, and 28.6 in the comparison group, respectively.

The median HSCL-D scores were 1.87 in the intervention group and 1.93 in the comparison group, and they were significantly different between the groups (p=0.046). A majority of the study participants (56.0% for the intervention group and 62.7% for the comparison group) met the HSCL-D threshold for depression symptoms (score of greater than 1.75). The prevalence of food insecurity was 91.6% in the intervention group and 94.8% in the comparison group. The median MOS-SSS scores for overall support were 52.6 in the intervention group and 53.9 in the comparison group.

Multiple logistic regression analyses for depression symptoms, testing three models found that: the livelihood program participants (e.g. Model 1: AOR: 0.68, 95% CI: 0.53-0.85), those who had higher monthly household income per capita (e.g. Model 1: AOR: 0.98, 95% CI: 0.97-0.99) and who had higher self-esteem (e.g. Model 1: AOR: 0.40, 95% CI: 0.26-0.63) were less likely to have depression symptoms among all models. All three models show that those who were women (e.g. Model 1: AOR: 2.74, 95% CI: 1.92-3.90), and those who had higher internalized HIV-related stigma (e.g. Model 1: AOR: 4.25, 95%CI: 2.97-6.07) were more likely to have depression symptoms. Household food insecurity (AOR: 3.47, 95% CI: 2.03-5.29) was positively associated with depression symptoms in model 2. On the other hand, multiple logistic regression analyses for food insecurity and social support found that no associations were observed between the program participation status and food insecurity, and between the program participation status and social support.

A significant average treatment effect on treated (ATT) for depression symptoms (T=-1.99) was detected when controlling for selection bias by the propensity score matching. Within this matched cohort, depression symptoms among the intervention group were significantly lower than the comparison group.

After performed propensity score matching for depression symptoms, all the covariates except marital status indicated being well balanced with less than 5% of standardized percentage bias, and non-significant *p*-value. Rubin's B (7.1) and Rubin's R (1.21) after matching were also sufficiently balanced. Although propensity score matching for food insecurity and for social support were performed, both of ATT (T=-1.57 for food insecurity and T=-0.14 for social support) were not significant.

Study Limitations

First, the possibility that those with better mental health participated in the livelihood program as compared to the comparison group cannot be confirmed because of cross-sectional nature of the study design. Second, problems from selection bias arising from unmeasured covariates could not be completely excluded in this study, although propensity score methods were used to reduce selection bias between the intervention and comparison groups. Third, due to self-reported measures, the results might be affected by social desirability and recall bias as well as possibility of over and under reporting. Finally, potential overlap between somatic symptoms of HIV-related disease and depression may pose over-estimation of depression symptoms among the study participants.

Discussion and Conclusions

To our knowledge, this is the first study that assessed the impact of livelihood program on depression symptoms, food insecurity and social support, and the rate of depression symptoms among PLHIV in Cambodia. This study highlighted that the livelihood program had the impact on mitigating the burden of depression symptoms among PLHIV in Cambodia as well as high rates of depression symptoms and food insecurity were found among PLHIV in Cambodia. Depression symptoms were associated with program participation status, female gender, monthly household income per capita, internalized HIV-related stigma, self-esteem and food insecurity.

Although the livelihood program found lower depression symptoms in the intervention group, mechanisms to respond to PLHIV's needs of mental health care should be integrated into not only health care programs but also livelihood programs. Such livelihood programs should be scaled up with an emphasis on improving psychological well-being. In addition, interventions should be undertaken that focus on women and those with lower household income, along with continued efforts to reduce stigma against PLHIV. To help people eliminate food insecurity and get out of poverty, long-term strategies should be factored into the implementation of livelihood programs. Food security is basic human rights, and it should not be threatened.

The findings are valuable for both governmental and non-governmental organizations in considering and implementing more effective livelihood programs for PLHIV. Furthermore, the results of this study, that livelihood programs mitigate the burden of depression symptoms, might be used to inform, improve, and expand current activities, since the majority of PLHIV in this study experienced depression symptoms.