

Review Article



The Story and Implications of the Korean Health Care Facility Counseling Project on People Living with HIV

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ABSTRACT

In 2005, the Korea Disease Control and Prevention Agency (KDCA) launched “Health Care Facility Counseling Project on People Living with human immunodeficiency virus (HIV)” funded by the private-subsidy project for the prevention of acquired immune deficiency syndrome (AIDS) and sexually transmitted diseases to provide people living with HIV (PLWH) psychological support and counsel them about the disease and antiretroviral therapy (ART). Currently, 38 counseling nurse specialists work at 28 healthcare facilities for patient care. Of all PLWH in Korea, 71.9% received benefits from the Counseling Project. Adherence to ART medication (>95.0%), level of depression or anxiety, counseling coverage, and viral load status were monitored as common project indicators. Various specialized programs have been implemented in diverse facilities. This project has played a pivotal role in HIV care continuum and viral suppression policies, resulting in 95.9% of PLWH maintaining undetectable status (<40 copies/ml) in 2021. In this review, we present the chronology and fulfillment of this project, which will be an essential step for future planning in the context of aging and the chronic comorbid nature of HIV/AIDS.

Keywords: Human immunodeficiency virus; Nurse specialists; counseling; Antiretroviral therapy; Highly active

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INTRODUCTION

As a result of an inaccurate public perception of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS), and the consequent prejudice and stigma, people living with HIV (PLWH) face an array of physical, psychological, and social hardships [1-3]. Providing psychological support, counseling, and medical education is crucial for promoting self-care among PLWH and controlling infectious diseases in society. Given the limited counseling services resources for PLWH in Korea, the Korea Disease Control and Prevention Agency (KDCA) hired trained counseling nurses in infectious diseases departments as a part of the “private-subsidy project for the prevention of AIDS and sexually transmitted diseases” to provide comprehensive psychological and medication-related counseling. This article summarizes the history and successes of the “Health Care Facility Counseling Project for PLWH” (hereafter Counseling Project)– in its 17th year since its launch in 2005 with 28 healthcare facilities involved as of 2022– and discusses its implications based on the final annual reports of the project [4].

1. Aim of the counseling project

The aim of the Counseling Project is to provide psychological support and health-related education and consultation, manage depression and anxiety, and improve adherence to antiretroviral treatment (ART) among PLWH who face social prejudice and stigma against HIV/AIDS. It seeks to address various problems that cannot be resolved through medical services provided in the doctor’s office.

2. Composition and finances of the counseling project

(1) Participating organizations

In 2005, four healthcare facilities jointly launched a pilot project as a research contract, and the pilot project transitioned to the main project from 2006 onward [5]. Additional facilities that provide care for PLWH in the community were added to the project in consideration of regional distribution; and as of 2022, 28 healthcare facilities are participating in the project. **Figure 1** illustrates the distribution of healthcare facilities who currently hire nurse counselors.

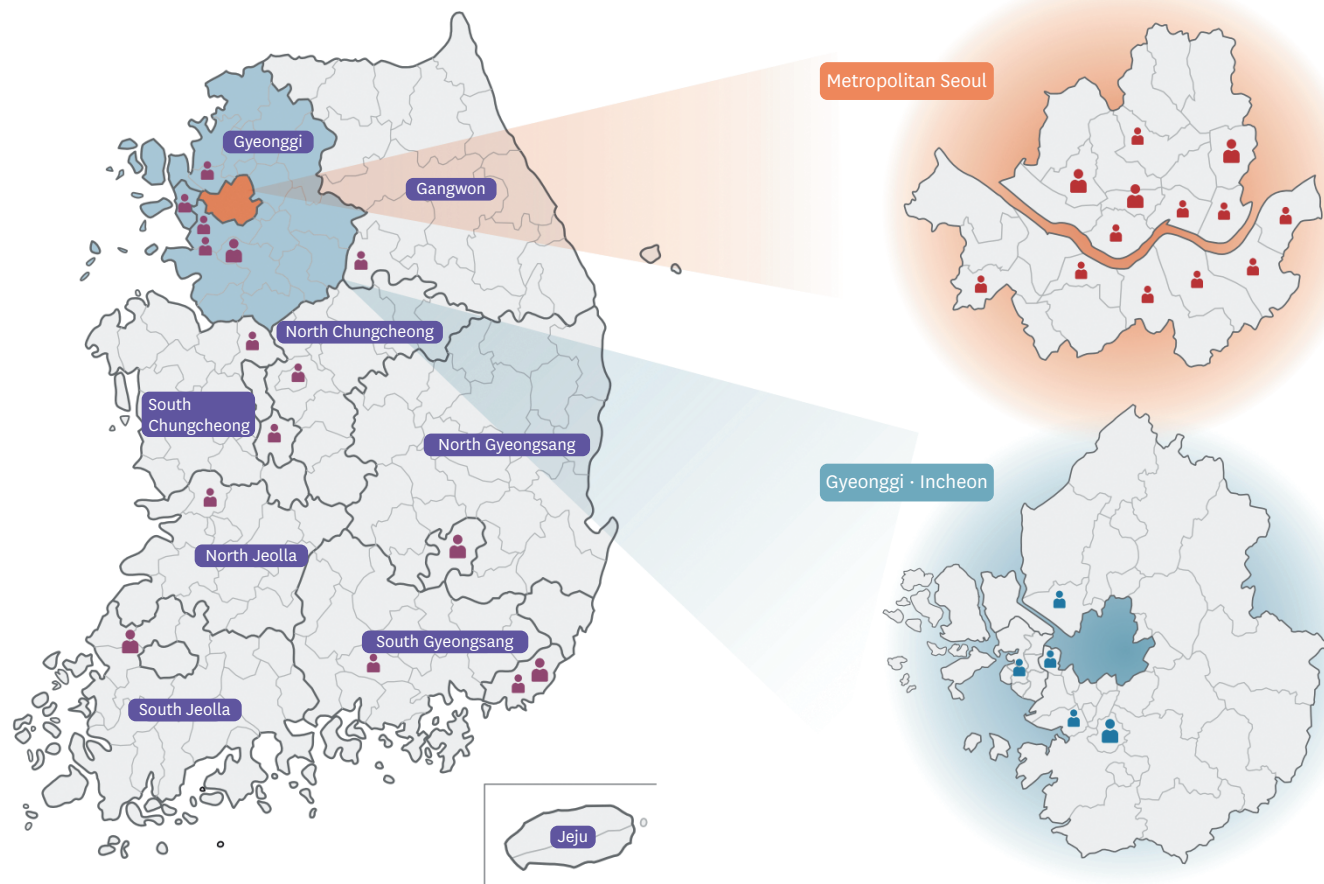


Figure 1. Provincial distribution of healthcare facilities where counseling nurses are on duty.

(2) Workforce

Counseling nurses are pivotal staff in infectious disease management and provide PLWH with accurate information about HIV and emotional support during the journey through diagnosis and treatment. They also play a role in promoting continued follow-up care, and help PLWH engage in self-care to maintain an undetectable viral load by adhering to the medication regimen, thus preventing transmission of the virus. Healthcare facilities (medical corporations and industry-university cooperative foundations) with an established infectious diseases division are eligible to participate in the project, and counseling nurses are employed by each healthcare facility. Currently, two coordinators and 38 nurse counselors are employed.

HIV/AIDS counseling nurses are licensed nurses with a relevant bachelor's degree and at least three years of nursing field experience. Project personnel are required to complete basic education (88 hours) in the first year of providing counseling services and advanced education (79 hours) the following year, followed by annual intensive refresher courses (55 hours) [6, 7]. The educational programs are structured by identifying trainees' educational needs each year and receiving multidisciplinary advice from education, nursing, infectious diseases, and counseling psychology experts [8, 9]. Basic education focuses on improving understanding of the disease and counseling theories and comprises a

summary of AIDS, diagnostic testing systems, AIDS policies, available services, laws and regulations, human sex and sex counseling, understanding of sexual minorities, and an outline of counseling. The advanced education program is more practicum-focused and comprises a counseling practicum (rational emotive behavior therapy), family counseling, sex counseling, and case review. The intensive refresher program focuses on enhancing counseling performance and job competencies and is available only for counselors with at least three years of experience. In 2014, a burnout prevention program was implemented to reduce job stress among nurse counselors who provide counseling services to a population with a high prevalence of depressive symptoms and suicidal ideation. The mean experience in the project among nurse counselors was 6.3 years (range: 0.5 - 16 years).

(3) Finances

Figure 2 shows the participating organizations, manpower, and budget. As of 2022, 39 nurse counselors (including two coordinators) were working in 28 healthcare facilities, with an annual budget of approximately 1.9 billion KRW (1.54 million USD). Although the budget for each facility expanded with the increasing number of participating organizations, the ratio of total project cost to labor cost rose from 72.1% in 2015 to 87.2% (including labor and welfare costs) in 2022 due to the increased average tenure of nurse counselors. This indicates that labor costs account for most of the budget,

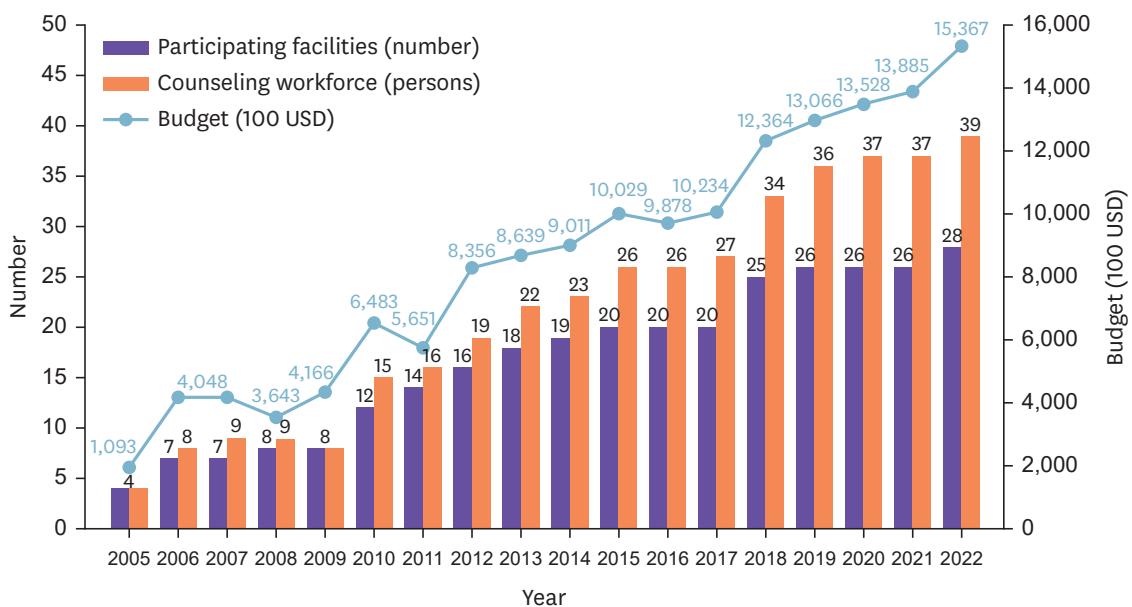


Figure 2. Changes in participating organizations, counseling workforce, and budgets by year.

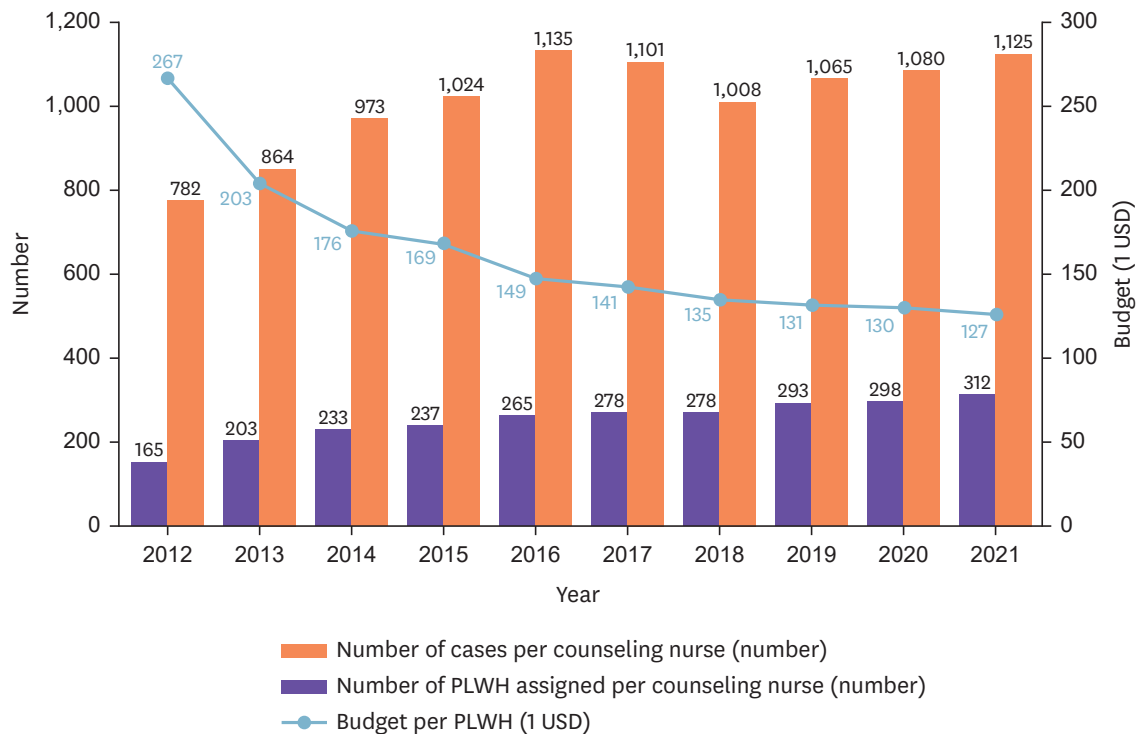


Figure 3. Changes in number of counseling cases, assigned PLWH per nurse counselor, and budget per PLWH. PLWH, people living with HIV.

with a decreased budget for the project itself. From 2013 onward—the year in which the same PLWH follow-up data and statistics were used among all participating organizations—the budget per PLWH has been in decline: from 250,000 KRW (203 USD) in 2013 to 157,000 KRW (127 USD) in 2021 (Fig. 3).

3. Counseling project coverage

The total number of PLWH utilizing the service since 2012 was identified based on the project report, and this number was compared with the total PLWH population registered in the Korea, as shown in the KDCA annual report (Fig. 4). In 2012, 40.2% of registered PLWH utilized the service, and due to the nationwide expansion of the project and systematic project implementation, the percentage rose to 71.9% by 2021. In 2021, 10,920 PLWH (including Korean nationals and foreign nationals) out of 15,196 (Korean nationals) in Korea utilized the counseling service, comprising 9,817 Korean men (89.9%), 648 Korean women (5.9%), 336 foreign national men (3.1%), and 119 foreign national women (1.1%) [10].

From 2012 to 2021, the number of clients per nurse counselor rose from 165 to 312, and the number of counseling cases per nurse counselor also rose from 782 cases in 2012 to 1,125 in 2021 (Fig. 3).

4. Major project contents

(1) Counseling method

Counseling services are offered via three channels: in-person, over the phone (cell phone or landline in the counseling room), and online (including text messages and emails). The counseling services are available for PLWH and their families, friends, and coworkers who are aware of the infection. Consent from PLWH is required to provide counseling to families, friends, and coworkers. Although COVID-19 blunted the overall access and delivery of HIV services in Korea, the rates of online and phone counseling of our project have increased during the pandemic and the rate of in-person counseling remained high [11] (Fig. 5).

(2) Counseling topics

From 2016 to 2020, most of the counseling cases pertained to HIV itself, but the percentage of case related to ART medication gradually increased to finally exceed that of HIV incidence in 2021 (Fig. 6). This may be attributable to the implementation of integrated performance reports since 2015, which required a standardization of the criteria for medication adherence monitoring. Consequently, monitoring the medication adherence of all PLWH on ART and counseling PLWH with poor medication adherence were provided continuously.

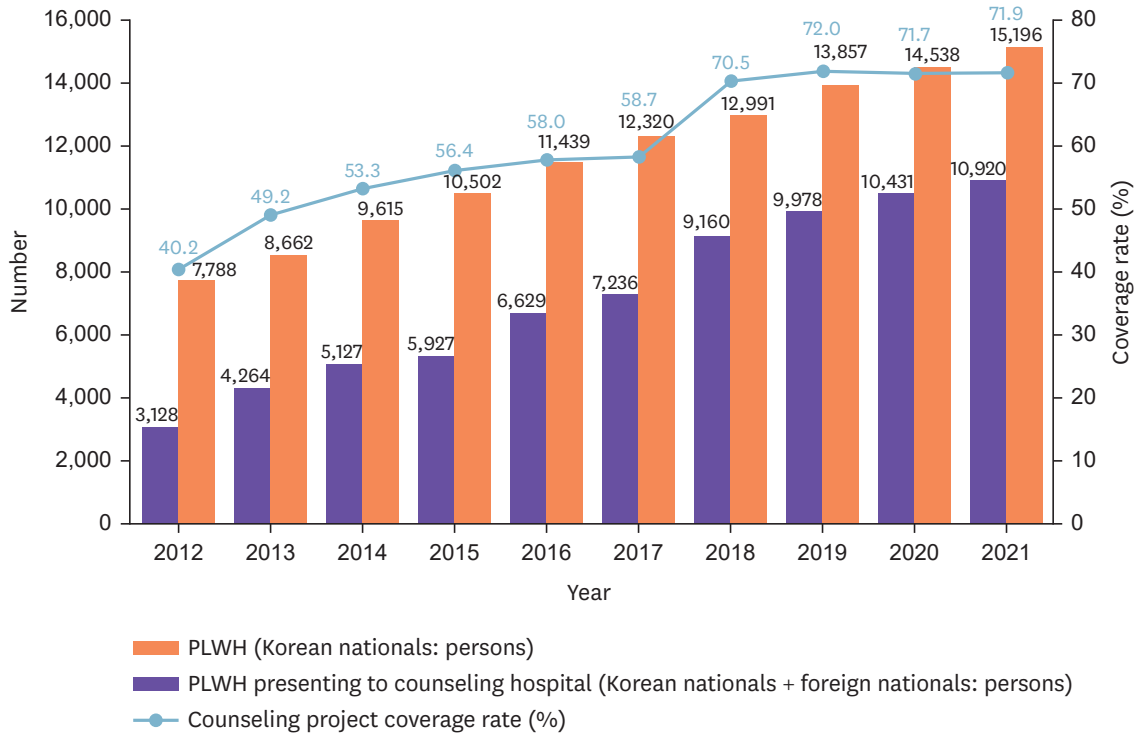


Figure 4. Counseling Project coverage of the PLWH population. PLWH, people living with HIV.

Of all counseling topics, HIV itself was the most common (22.6%). Specifically, the advice included knowledge and information about HIV, disease progress, emergency response, and symptom coping methods. The next most common topic was ART (20.3%), which included medication administration, adherence, adverse drug reactions (ADRs), and ADR management. These

issues were mostly directly related to HIV/AIDS and its treatment, suggesting that they can only be provided at a healthcare facility.

(3) Project characteristics by period

During the period from 2005 - 2006, the major focus of the project was implementation, developing educational programs, and establishing an information security and management system. From 2007 - 2008, a system to connect PLWH to related organizations was established to provide them with an array of necessary services. Subsequently, medication adherence and depression/ anxiety levels were monitored to implement supportive services.

From 2009 onward, the supportive services provided by the facilities were diversified, including cognitive function assessment, quality of life assessment, suicide prevention, self-testing for drinking, support for pregnant women, support and testing for homeless individuals, and referrals to long-term care facilities. HIV screening (with tuberculosis screening) for homeless people was conducted on homeless people at the Seoul and Youngdeungpo railway stations after obtaining consent. Individuals who tested positive after the initial screening were referred to the hospital for additional testing,

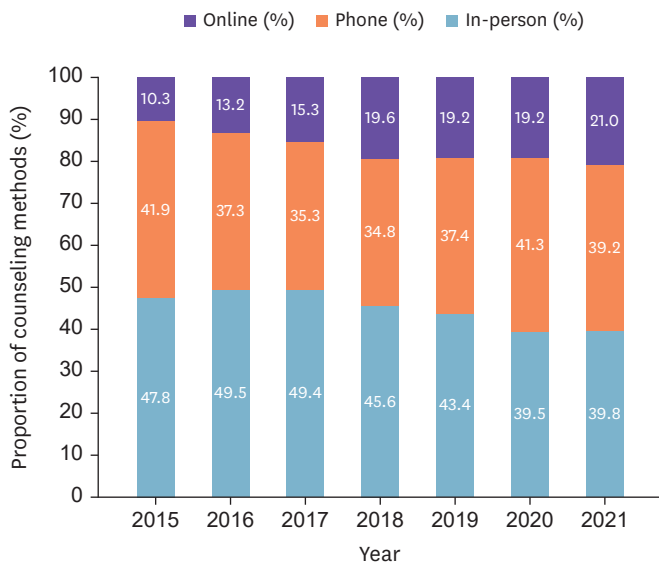


Figure 5. Changes in counseling methods.

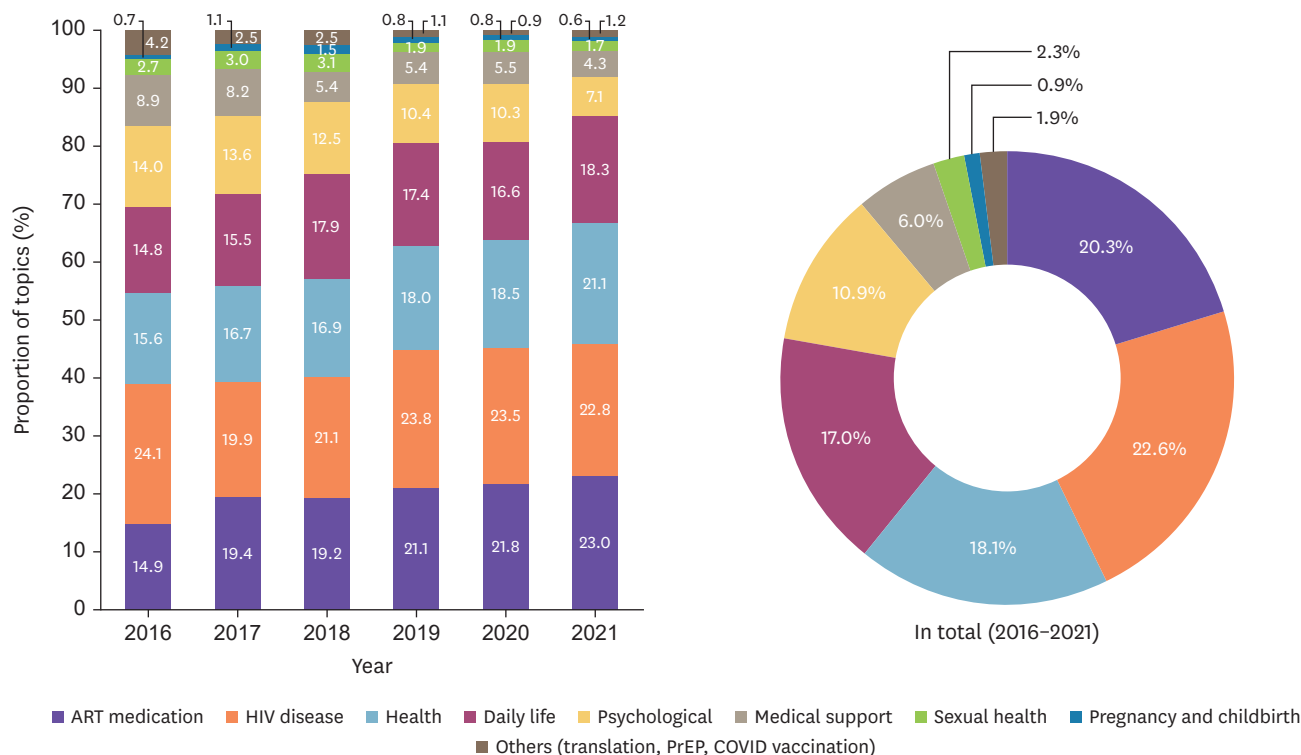


Figure 6. Categorization of counseling topics. ART, antiretroviral treatment; HIV, human immunodeficiency virus; PrEP, Pre-Exposure Prophylaxis; COVID-19, coronavirus disease 2019.

examination, and counseling. A total of 970 individuals were tested, and three (0.3%) tested positive for HIV.

From 2015 onward, all participating organizations started to draw up integrated reports using a standardized template, helping eliminate overlapping activities among organizations and allowing them to publish their performance according to common project indicators. Common project indicators were set to both improve medication adherence and reduce anxiety and depression.

The first common goal was medication adherence management. PLWH showing poor medication adherence (<95%) were reviewed to identify its reasons. They were provided with appropriate information and interventions to improve adherence; furthermore, PLWH who arbitrarily interrupted ART were continually identified and contacted to encourage revisits for treatment. Counseling and education were provided to explain the effects and significance of medication adherence in life to motivate adherence among PLWH. Correct medication-taking methods, ADR, and the management of these reactions were explained to improve medication adherence. Moreover, individualized plans tailored to a patient's lifestyle were offered through counseling to motivate

PLWH toward a uniform treatment plan, disregarding an individual's personal situation, and curtailing their adherence.

The second common goal was to identify the level of depression and anxiety among PLWH throughout their diagnosis and treatment journey, and manage and relieve them, while referring them to relevant services to induce emotional stability. Their psychological and emotional aspects, such as diminished self-esteem, fear of others' judgment, guilt, fear of death, and hopelessness, were addressed during counseling to reduce suicidal ideation and prevent poor medication adherence induced by psychological anxiety, thereby contributing to improved quality of life [12].

From 2016 onward, the counseling rate was added to the existing common indicators, based on which the number of PLWH managed through the Counseling Project was identified. The goal was to maintain a counseling rate of 80% among PLWH who presented to the hospital.

In addition to common indicators, each facility in this study performed specialized projects that included chronic disease management, detection of geriatric

diseases, and improvement of oral health among PLWH. Another specialized project was a survey of changes in HIV/AIDS-related knowledge and attitudes among current or prospective healthcare professionals. Although the assessment method differed among the facilities prior to 2015, a standardized education assessment questionnaire was implemented in 2016; hence, pooled results have been generated since then. The education assessment questionnaire for healthcare professionals and prospective healthcare professionals was developed by the Inha University School of Medicine. The education session lasted 30 - 60 minutes and comprised a lecture and question-and-answer session.

In 2018, the number of participating facilities substantially increased; the study of Pre-Exposure Prophylaxis (PrEP) with Truvada was performed, HIV self-test kits were provided for the partners, and the prevalence of comorbidities was surveyed. From 2020 onward, the viral suppression rate of PLWH—a crucial index for treatment response, prognosis monitoring, and transmission prevention—has been added as a common indicator, and the number of PLWH with an undetectable viral titer (defined by HIV RNA copies <40 copies/ml) under ART has been monitored. Within the context of the United Nations' AIDS (UNAIDS) target for 2030, UNAIDS 95-95-95, these data are utilized as an indicator of suppression rate in the area of infection and disease prevention and management related to climate change in the Korea's Health Plan 2030 [13]. **Table 1** shows the indices used in the counseling project and primary project foci.

As of 2022, the counseling rate, improvement of medication adherence, viral suppression rate, and post-counseling reduction of depression are considered common project indicators to improve treatment adherence and quality of life among PLWH.

5. Project outcomes

(1) Improvement of medication adherence and undetectable viral load rate

The aim of the Counseling Project is to help them maintain and improve their health and successfully adjust to society by providing comprehensive counseling. This includes medication and psychological counseling and to prevent virus transmission by motivating PLWH to change their behaviors, which requires high medication adherence and viral suppression. In this project, ART adherence of PLWH being treated at the division of infectious diseases in one of the participating facilities

and were taking antiviral medications, was assessed via pill counting—a method of calculating medication administration rate based on the previous prescription date, days of prescription, number of days of medication administration, and number of pills remaining. A modified version of Simoni's [14] medication adherence questionnaire was also used. The questionnaire comprised five items regarding forgetting medication and 24 items related to reasons for not taking it.

After assessing medication adherence in this manner, PLWH with a medication adherence of <90% were given at least two counseling sessions for six months following the initial assessment and re-assessed after the counseling sessions. Additionally, depression was assessed among PLWH who consented to the depression screening test with the Patient Health Questionnaire-9 (PHQ-9) and psychological counseling [15, 16]. Those with a depression score of 10 or higher (moderate depression) were considered for continuous counseling and were provided with at least two counseling sessions over six months; reduction in depression was re-assessed using the same instrument. Anxiety was assessed for PLWH consenting to the assessment using the State-Trait Anxiety Inventory (STAI) [17]. For those with an anxiety score of 52 or higher, at least two in-person counseling sessions were provided over six months, and anxiety was re-assessed using the same instrument.

The percentage of PLWH managed through the Counseling Project who demonstrated a medication adherence rate of $\geq 95\%$ increased from 86.2% in 2015 to 96.8% in 2021 (**Fig. 7**). Anxiety scores also decreased by 11.1 in 2015 and 2021, and the depression score decreased by 6.5 in 2015 and 6.2 in 2021.

In 2021, 10,170 PLWH presented to one of the 26 participating healthcare facilities and had been taking medications for six months or longer, and 10,023 of these individuals had viral test results available. Of these, 9,613 (95.9%) had an undetectable viral load (<40 copies/ml). A total of 9,680 Korean PLWH had available viral test results, and 9,287 (95.9%) had an undetectable viral load (**Fig. 7**). A total of 343 foreign national PLWH had available viral test results, of which 326 (95.0%) had undetectable viral loads.

(2) Referral to relevant organizations: resolution of emergencies, emergency financial support, and referral to long-term care facilities

Table 1. Expansion in and changes of monitored indicators in the Counseling Project

Years	Major project contents	Specialized project contents
2005 - 2006	<ul style="list-style-type: none"> -Strategies development for promoting the Health Care Facility Counseling project for PLWH -Development of education and training programs for nurse counselors -Connection system establishment of counseling and epidemiological investigation -Establishment of information security and management system -Development of standardized counseling manual and training materials 	<ul style="list-style-type: none"> -Research contract project (2005) -Converted to a private subsidized project (2006)
2007 - 2008	<ul style="list-style-type: none"> -Establishment of system to connect between HIV- related organizations -Implement of method to assess medication adherence -Addition of instruments to assess depression, anxiety, and embarrassment -E-learning system development -Regional expansion of the Project to non-Metropolitan areas 	<ul style="list-style-type: none"> -Each facility launched specialized projects -Support for homeless, unidentified PLWH (2008) -Public health center meeting (2008)
2009 - 2014	<ul style="list-style-type: none"> -Improvement analysis of medication adherence after counseling -Counseling satisfaction survey -ART treatment rate (2013) 	<ul style="list-style-type: none"> -Implementation of emotional support therapy for PLWH: Bibliotherapy (2009), quality of life scale analysis (2011), breathing meditation (2011), art therapy (2012), craft therapy (2014) -Referral to psychiatric treatment -Examination of suicidal ideation and provision of counseling for suicide prevention (2014) -Prevalence investigation of HIV among homeless people (2010) -Implementation of HIV-associated cognitive dysfunction tests (2011) -Long-term care facilities visiting consultation (2011) -Self-test for alcohol drinking (2011) -Health promotion by exercise prescription for PLWH (2012) -Development of materials (pregnancy & childbirth) for woman PLWH. Storage and delivery of emergency prophylactic drug (zidovudine) (2012)
2015 - 2017	<ul style="list-style-type: none"> -Standardized report form development -Drawing up integrated reports using a standardized reporting data on common performance indicators 	<ul style="list-style-type: none"> -Geriatric diseases evaluation (2015) -Patient education on chronic diseases (hypertension, diabetes mellitus, hyperlipidemia) (2015) -Dental health promotion project for vulnerable groups with HIV (2016) -Sexual behaviors and awareness survey (2016) -Online survey for anxiety, depression, and ART adherence (2017)
2018 - 2021	<ul style="list-style-type: none"> -More facilities joined the Counseling Project. -Implementation of HIV RNA levels as a performance indicator (viral suppression rate) 	<ul style="list-style-type: none"> PrEP (Truvada) provision program for people at high risk for HIV (2018) -Survey on vaccination rate and perception among PLWH (2019) -Self-test kits distribution for early detection of HIV infection (2019) -Survey on the prevalence and treatment of comorbidities among PLWH (2021) -Survey on the incidence and treatment completion rates of latent tuberculosis among PLWH (2021)

PLWH, people living with HIV, HIV, human immunodeficiency virus; ART, antiretroviral therapy; PrEP, pre-exposure prophylaxis.

Beyond disease management and health counseling in this Counseling Project, PLWH were supported by connecting them to relevant organizations that could provide financial or psychosocial assistance, after needs assessment through counseling and consent for the provision of information. In 2021, our counseling nurses made 4,362 referral linkages for 2,182 clients. Public health center linkage for patient registration to the governmental system was the most frequent (1,216 cases; 27.8%), which enrolled patients into medical security support. Emergency care cost support, living expenses support for vulnerable classes, and caregiver support during hospital stays (443 cases, 10.2%) followed.

Other types of efforts included support for admission to designated temporary shelters and long-term care facility arrangements for patients with deteriorating, chronic conditions. Especially for vulnerable groups, such as refugees or undocumented migrants, referral to non-government organizations or linking governmental funds was essential to maintain continual care by connecting language translators for smooth communication.

(3) Management of chronic disease

As a result of the aging of PLWH, the prevalence of chronic comorbidities is also increasing. There is a high incidence of hypertension, diabetes mellitus, weight gain,

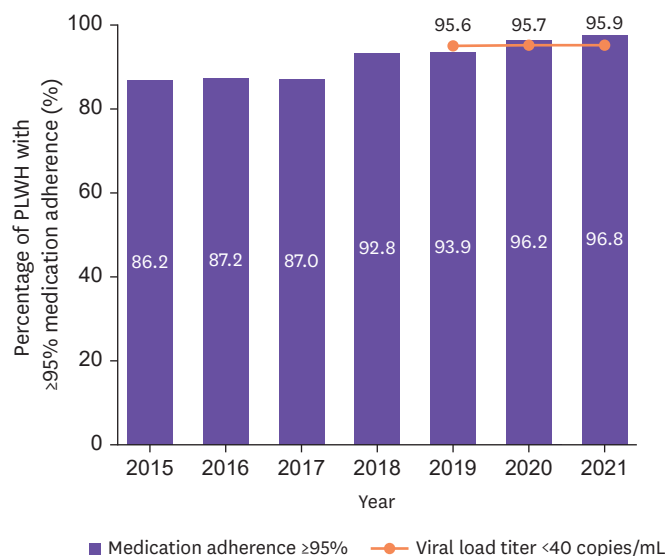


Figure 7. Improvement in medication adherence and rate of undetectable viral load.

PLWH, people living with HIV.

dyslipidemia, cardiovascular diseases, neurocognitive disorders, renal insufficiency, and cancer requiring counseling to modify lifestyle risk factors, such as smoking, drinking, and diet [18-26]. In 2021, the prevalence of dyslipidemia was the highest ($n = 563$, 22.1%) among 2,547 PLWH receiving care at eight healthcare facilities, followed by hypertension ($n = 459$, 18.0%), and diabetes mellitus ($n = 237$, 9.3%). Furthermore, counseling and education to motivate PLWH to modify risk factors, such as smoking and drinking, were provided. In two facilities, the prevalence of HIV-related neurocognitive disorders was measured using Montreal Cognitive Assessment-Korea (MoCA-K) [27]. Nine out of 65 patients (18.3%) presented abnormalities based on the scoring criteria: ≥ 23 out of 30 = normal and < 23 = abnormal. Given the growing significance of chronic disease management, mid- to long-term plans must be established regarding the prevalence of cardiovascular diseases, motivation to quit smoking and drinking, neurocognitive assessment, and improving quality of life.

(4) Patient satisfaction

As part of the quality control measures and efforts to expand the services of the Counseling Project, a client satisfaction survey was introduced in 2020. A "Counseling satisfaction survey" was administered anonymously through a survey URL posted on online PLWH communities and through verbal instructions by nurse counselors. The survey comprised nine questions regarding the counseling process, six regarding the knowledge imparted during counseling, six related to the use of counseling rooms, and

one question on overall satisfaction with counseling. A total of 114 PLWH in 2020 and 205 PLWH in 2021 responded to the satisfaction survey, and the percentage of clients who responded "satisfied" to the question related to overall satisfaction with counseling rose from 66.6% in 2020 to 90.2% in 2021.

DISCUSSION

The Counseling Project commenced in 2005 as a critical clinical support program for PLWH and expanded to 28 healthcare facilities in all regions of Korea. Currently, 71.9% of all PLWH in Korea receive the benefits of the Counseling Project through which the government strives to curtail stigma and discrimination against PLWH and foster a favorable environment, especially in healthcare facilities. This project has played a pivotal role in the treatment continuity and viral suppression policies. It differs from the HIV cohort study project in purpose and enrolled or covered patient numbers [4, 21-24, 28-31]. However, its outcomes also represent trustworthy data on the national HIV treatment status. There has been no official report on the UNAIDS 95-95-95 target from the KDCA [32, 33]. Regarding the first "95" target, which represents the percentage of PLWH knowing their HIV status, the previous European Center for Disease Control HIV Modeling report utilizing 2009 - 2015 nationwide claims data estimated changes from 58% in 2015 to 63% in 2020 [34]. In 2021, our data revealed that the percentage of PLWH on ART medication and those who remained undetectable (< 40 copies/ml) were 96.8% (good adherence $> 95\%$) and 95.9%, respectively.

Currently, counseling nurses manage 312 clients per person; however, the budget for this project is relatively inadequate. To ensure quality care for PLWH, it is important to ensure adequate staffing and stable working conditions to retain and advance professional human resources [35]. In countries such as Japan, the United Kingdom, and the United States, nurses in this field are working in advanced practice nurse positions, such as AIDS Certified RN, advanced AIDS Certified RN, and HIV nursing specialists, obtained through specialized nursing associations or certifications [36-42]. In Korea, the government manages the licensing of 13 advanced practice nursing programs through a graduate school system (e.g., home health care, infection control, gerontological nursing, critical care, oncology, and hospice). To educate and secure professional nursing staff, further research by academic associations







and scholarly research, as well as international exchanges of knowledge and experience, are required.

With the aging of PLWH and the progression to the chronic nature of HIV diseases, the significance of building an intimate rapport with clients has been highlighted not only in patient care settings but also in counseling settings. Therefore, it is necessary to explore measures to promote patient autonomy in patient-centered care. The Counseling Project must advance beyond controlling biomedical indices, namely drug adherence, suppressing HIV viral loads, and preventing its transmission, and instead transition to a sustainable project that improves patients' health and quality of life throughout the patient care continuum [3, 5, 43-45].

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Conflict of Interest

No conflict of interest.

Author Contributions

Conceptualization: CJP, CYH. Data curation: CJP, LJH, AJM, KJH, WNR. Formal analysis: CJP, LJH, CYH. Writing - original draft: CJP, LJH, AJM, KJH, WNR. Writing - review & editing: CJP, LJH, AJM, KJH, WNR, CYH.

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