Revista Enfermería Herediana
E-ISSN: 2075-4000
2025, July-December | Volume 18, Issue 2, e6606

EXPERIENCE REPORT

DOI: https://doi.org/10.20453/renh.v18i.2025.6606

SEPA+PrEP: a biobehavioral intervention to prevent HIV in Peruvian women

Giovanna C. De Oliveira[1],
Yesenia Musayón-Oblitas[2],
Maria Angela Fernandez-Pacheco[2],
Maria Huaman Hinostroza[2],
Rosina Cianelli[1]

[1] University of Miami. Coral Gables, Florida, USA.

[2] Universidad Peruana Cayetano Heredia, Grupo de Investigación CuidART-e, Instituto de Medicina Tropical Alexander von Humboldt. Lima, Peru.

ABSTRACT

More than 110,000 people living with HIV reside in Peru. Among reported cases in women, those aged 30-34 are the most prevalent, followed by women aged 20-29 and 35-49. Sexual transmission accounts for more than 90% of all cases; in women, it occurs almost exclusively through heterosexual intercourse. Within this context, the present study examines the implementation experience of the HIV prevention intervention (SEPA+PrEP) delivered by community health volunteers in Lima and led by the Faculty of Nursing of Universidad Peruana Cayetano Heredia. The objective was to assess the acceptability and feasibility of SEPA (health, education, prevention, and self-care) integrated with PrEP (pre-exposure prophylaxis) among community leaders in Lima. At the conclusion of the project, limited knowledge regarding HIV transmission and prevention among Peruvian women was evident, as well as the need to scale up the intervention to potentially contribute to reducing the number of new infections in the country.

Keywords: acquired immunodeficiency syndrome; sexually transmitted diseases; public health.

Received: June 18, 2025
Accepted: August 19, 2025
Online: November 7, 2025

Scientific contribution:

The original SEPA intervention was grounded in the principles of Bandura's Social Cognitive Model (SCM) of behavior change and Freire's critical pedagogy. The incorporation of PrEP, together with cultural and linguistic adaptations, significantly strengthened its applicability within the Peruvian context. A preliminary evaluation of the acceptability and feasibility of SEPA+PrEP among women in Peru is essential as a prerequisite for its implementation and subsequent scale-up.

INTRODUCTION

The HIV epidemic continues to be a major challenge in Latin America. In Peru, the National Center for Epidemiology, Prevention and Disease Control (CDC) of the Ministry of Health (MINSA) estimated that in 2023 approximately 110,058 individuals were living with HIV, representing a prevalence of 0.39% among the adult population aged 15–49 (1). Similarly, the number of infected women continues to rise: for every four men living with HIV, one woman is infected (2). Between 2021 and 2022, data from MINSA indicated that approximately 20% of HIV infections occurred in women, of whom 94% acquired the virus through heterosexual transmission, demonstrating that this constitutes the primary route of infection in this group (3). Women of reproductive age are considered a vulnerable population with respect to HIV infection, and according to the Demographic and Family Health Survey, there is also a significant association between HIV-related knowledge and preventive practices among sexually active women (4). Furthermore, it is important to mention that Lima is the region that reports one-third of cases nationwide (5).

In this context, the perception of invulnerability to HIV among heterosexual individuals, particularly women, constitutes a factor that may delay diagnosis and limit the adoption of preventive measures. This erroneous perception has been identified as a barrier to both early detection of infection and epidemic control, since the false belief of not being at risk of acquiring HIV may lead to diagnosis at advanced stages and reduced engagement in preventive behaviors (6,7). Based on the above, the present study aims to analyze the experience of evaluating the acceptability and feasibility of the SEPA+PrEP intervention (health, education, prevention and self-care + pre-exposure prophylaxis) among community leaders in Lima, Peru.

INTERVENTION REPORT

A research team from the School of Nursing and Health Studies at the University of Miami (UM) introduced the SEPA+PrEP project to the School of Nursing of Universidad Peruana Cayetano Heredia (UPCH) as an effective intervention aimed at promoting behavioral changes with significant health impact. It is important to mention that SEPA is an evidence-based, culturally tailored HIV risk-reduction intervention that was originally designed for heterosexual Latina women in the United States (8–11). Additionally, the intervention has been evaluated in three randomized trials and is recognized as an evidence-based intervention by the U.S. Center for Disease Control and Prevention (CDC) (8). Originally, it did not include PrEP (11); however, researchers at UM adapted its content to incorporate this prevention strategy, resulting in SEPA+PrEP, which was shown to be acceptable and valid among Latina women in the United States (12). Therefore, this study represents the first evaluation of the adaptation of SEPA+PrEP outside the U.S. context.

This intervention was also adapted and implemented among Black women in the United States. For the development of SEPA+PrEP-BW (Black Women), rigorous guidelines from the ADAPT-ITT model (13) were followed to preserve the core components and theoretical foundations of SEPA: Bandura's Social Cognitive Model (SCM) of behavior change (14) and Freire's pedagogy (15). The ADAPT-ITT acronym stands for Assessment, Decision, Adaptation, Production, Topical Experts, Integration, Training, and Testing. This model facilitates the adaptation of an existing evidence-based intervention (EBI) to a new setting without modifying or contradicting its essential components or theoretical foundations.

Table 1. SEPA+PrEP logical model for behavioral change used in session planning

Behavioral change determinants[1]	Activities[2]	Results[3]	
		Short-term[4]	Long-term[5]
1. Knowledge (regarding HIV transmission, prevention, and treatment)	**Session 1:** *HIV in your community* Topics: HIV transmission, mother-to-child (vertical) transmission, tests to diagnose HIV. Activities: Video on HIV prevention, presentation and discussion. These activities are related to determinants 1, 2, and 4.	Increase in: • Knowledge about HIV • Attitudes toward HIV testing	Increase in: • Knowledge about HIV • Attitudes toward HIV testing

[1] Related to risk factors; [2] Related to behavioral change determinants; [3] Expected changes resulting from activities associated with behavioral change determinants; [4] Expected to occur immediately after participation in SEPA+PrEP; [5] Expected to occur between one and six months after participation in SEPA+PrEP.

Table 1. *(Continuation).*

Behavioral change determinants[1]	Activities[2]	Results[3]	
		Short-term[4]	Long-term[5]
2. Attitudes (toward condom use) 3. Self-efficacy (confidence in the ability to use a condom)	**Session 2:** *Prevention of HIV, AIDS and sexually transmitted infections* Topics: Myths and facts about HIV and AIDS, STI transmission, importance of HIV testing. The ABC+PrEP approach to HIV prevention (abstinence, mutual fidelity, male and female condom use, and PrEP). Access to PrEP, indications for use, and target populations. Importance of HIV testing. Activities: presentation and discussion; demonstration and skill-building exercises for male and female condom use; discussion of PrEP recommendations and usage. These activities are related to determinants 1, 2, 3, and 4.	• Intention to reduce risk behaviors • Intention to undergo HIV testing • Self-efficacy related to condom-use skills • PrEP: (who should use it, how to use it, and how to access PrEP) • Assertive communication and partner negotiation	• Correct and consistent condom use during vaginal and anal intercourse • Intention to undergo HIV testing • Condom-use self-efficacy • Correct PrEP use among individuals meeting eligibility criteria • Assertive communication and partner negotiation
4. Intentions (to reduce the risk of acquiring HIV and practice safe sex) 5. Partner communication and negotiation	**Session 3:** *Partner communication and negotiation. Violence prevention in the context of HIV* Topics: self-esteem and its impact on intimate relationships; types of communication; assertive communication; condom-use negotiation. Conflict resolution in healthy relationships; domestic violence; impact of violence on families; precautionary measures and action planning. Review of previous sessions and key learning points. Activities: presentation and discussion; role-playing exercises on assertive communication and condom-use and PrEP negotiation; role-playing on assertive communication and conflict resolution; personal commitment to support others in the community; appreciation notes and certificate distribution. These activities are related to determinants 1, 2, 3, and 4.	Increase in: • Partner communication skills • Condom-use negotiation • Communication and negotiation regarding PrEP use • Conflict resolution • Precautionary measures and action planning	Increase in: • Partner communication • Condom-use negotiation • Self-esteem • Partner support for safer sexual practices Reduction in: • Domestic violence

[1] Related to risk factors; [2] Related to behavioral change determinants; [3] Expected changes resulting from activities associated with behavioral change determinants; [4] Expected to occur immediately after participation in SEPA+PrEP; [5] Expected to occur between one and six months after participation in SEPA+PrEP.

Moreover, it is important to emphasize that although SEPA has been evaluated in other Latin American countries (Chile, Mexico, Puerto Rico, and Guatemala), this is the first time that SEPA+PrEP has been implemented outside the United States. The adaptation included contributions from a Community Advisory Board (CAB), an expert panel, local healthcare providers, community agencies, researchers, and members of the target population, namely Hispanic women. Table 1 presents the logical model of the intervention for behavioral change, as well as a description of the SEPA+PrEP content (9–11).

The SEPA+PrEP Peru project proposal was collaboratively developed by the research teams from the University of Miami (UM) and Universidad Peruana Cayetano Heredia (UPCH). The objectives of the proposal were: i) to adapt SEPA+PrEP from a linguistic and cultural perspective for cisgender heterosexual Peruvian women (CHPW); ii) to identify culturally and behaviorally relevant barriers to HIV prevention among CHPW in an urban underserved area; iii) to train community facilitators; iv) to determine the initial acceptability and feasibility of SEPA+PrEP among CHPW; and v) to identify community and healthcare barriers and strategies that facilitate PrEP uptake in this population. The study received approval from the UPCH Institutional Ethics Committee.

Peruvian nurses, as well as faculty members and researchers from both universities, participated in the linguistic and cultural adaptation process of the intervention. The evaluators, who voluntarily expressed their willingness to collaborate, were required to meet the following criteria: hold a master's or doctoral degree; training in the management of patients with HIV; experience in research on infectious diseases (HIV or AIDS); and a track record in the development of preventive programs in community settings.

For the evaluation of the intervention's adaptability, acceptability, and feasibility, activities were conducted

in equitable partnership with community organizations, with the participation of six community leaders who met the following inclusion criteria: i) being over 18 years old; ii) ability to speak, read, and write in Spanish; iii) holding a community-recognized leadership role; and iv) voluntary agreement to participate in the study. In addition, two nurses and one third-year nursing student from the UPCH Program of Nursing participated. The community leaders participated in the three sessions of the SEPA+PrEP intervention adapted for Peruvian women, during which feasibility and acceptability of the program were discussed, generating objective and direct input for potential modifications.

Regarding the intervention, sessions were conducted in a private conference room at the UPCH School of Nursing. All nine participants attended the entire program and actively engaged in each session. The training was delivered by the research team over four consecutive days, with eight-hour daily sessions. The group format was successful, as it promoted interaction and facilitated a productive exchange of knowledge between participants and the UM research team. At the end of the three sessions, each participant received a personalized certificate and had the opportunity to complete a written evaluation of each session.

DISCUSSION

During the intervention, it was observed that myths and misconceptions surrounding HIV persist, as reported by participants: "Even in Peru, there are people who do not know the modes of HIV transmission: clothing, kissing, kitchen utensils, using the same bathroom, or during oral sex." Similarly, HIV-related stigma remains present, as evidenced by the use of terms such as "AIDS patients," "contagious," or "code white" in hospitals to refer to individuals living with the virus. Similarly, certain social groups continue to be labeled or stigmatized as carriers of AIDS, including homosexual individuals, sex workers, hairstylists, among others. Another relevant finding was that PrEP was an unfamiliar concept for community leaders and remained poorly recognized even among healthcare personnel. Moreover, it was identified that a large portion of the Peruvian community still does not distinguish between being HIV-positive and having AIDS.

During the sessions, the increasing prevalence of bisexuality and the persistence of discriminatory beliefs were discussed, such as the notion that "children must be properly raised so they do not become gay," or the "fear of bathing a family member with HIV because transmission could occur in that way." One of the most extensively discussed topics was women's self-esteem, highlighting that Peruvian women tend to have low self-esteem, which contributes to feelings of dependence on their male partners, particularly in economic terms. Despite social and technological development, as well as the widespread availability of information and media in the country, chauvinism persists as a subculture in several regions and social groups and is often reinforced by women themselves. In this regard, a recent study conducted among Peruvian and Chilean university students found that the former exhibited higher levels of sexual chauvinism compared with the latter (16).

Complementarily, it was discussed that younger women tend to demonstrate strong emotional dependence on their partners and measure their happiness according to the attention received from men. This situation leads them to avoid conversations related to condom use, fidelity, or sexual exclusivity. Among married women, conflicts or considerations of separation are often avoided because "the Peruvian society does not view divorced women favorably." Moreover, participants discussed the concept of so-called "open relationships" among young people, as these may limit partner fidelity and increase HIV-related risk factors.

Regarding the results obtained, the evaluations of the three sessions showed that all participants were satisfied with both the intervention and its delivery format, as well as its content. Among their recommendations was the inclusion of short video clips extracted from Peruvian television series, which could directly influence women's perceptions of HIV. Participants expressed satisfaction with the feedback received following role-play simulations and with the skills acquired in terms of assertive communication. Several participants stated that they would like to disseminate the intervention to a broader segment of the community. Overall, the implemented intervention achieved the desired impact among participating women and generated additional positive outcomes, such as the recognition that education and information constitute key tools for empowerment in caring for their own health and that of other women in the community. In this sense, intervention could produce a multiplier effect within the community.

CONCLUSIONS

This study demonstrates the initial feasibility and acceptability of the SEPA+PrEP intervention for women in Peru, showing that, with appropriate adaptation to the local context and a relevant implementation strategy, it can be consolidated as an effective approach to reduce HIV incidence in this population. The ex-

perience revealed the persistence of myths, stigma, and knowledge gaps surrounding HIV within a typical Peruvian community, underscoring the urgency of programs such as SEPA+PrEP. The community leaders themselves highlighted the need for training on HIV-related topics, both to contribute to stigma reduction and to strengthen prevention efforts, early detection, and timely access to treatment within their communities. Consequently, scaling up the intervention at a national level in Peru is imperative, with the expectation that this will contribute to reducing the number of new HIV infections in the country.

Conflict of Interest:
The authors declare no conflict of interest.

Funding:
Funding was provided by the University of Miami, School of Nursing and Health Studies.

Ethics Approval:
This study was approved by the Institutional Research Ethics Committee of Universidad Peruana Cayetano Heredia, SIDISI No. 215456.

Authorship Contribution:
GDO: conceptualization, formal analysis, research, methodology, validation, visualization, writing of the original draft, writing – review & editing.
YMO, MAFP, MHH: research, validation, writing of the original draft, writing – review & editing.
RC: conceptualization, formal analysis, research, methodology, validation, visualization, writing of the original draft, writing – review & editing.

Acknowledgments:
We would like to thank Peruvian nurses Luz Canguahuala and Maria Mursin for their assistance with the preliminary adaptation of the intervention slides, community leaders Rita Magali Román Paz, Guisella Giovanna Castañeda De la Cruz, Elizabeth Justina Enríquez Albornoz, and Natividad Carmen Huachua Siccha for their active participation in the project.

Corresponding author:
Giovanna De Oliveira
g.deoliveira@umiami.edu

REFERENCES

1. Centro Nacional de Epidemiología, Prevención y Control de Enfermedades (PE). CDC Perú: presenta nuevo tablero de datos de información epidemiológica de la infección por VIH/SIDA [Internet]. Lima: MINSA; October 27, 2022. Available from: https://www.dge.gob.pe/portalnuevo/informacion-publica/prensa/cdc-peru-presenta-nuevo-tablero-de-datos-de-informacion-epidemiologica-de-la-infeccion-por-vih-sida/
2. Centro Nacional de Epidemiología, Prevención y Control de Enfermedades (PE). CDC Perú: por cada 4 hombres con VIH, 1 mujer padece la infección [Internet]. Lima: MINSA; October 20, 2022. Available from: https://www.dge.gob.pe/portalnuevo/informacion-publica/prensa/cdc-peru-por-cada-4-hombres-con-vih-1-mujer-padece-la-infeccion/
3. Sistemas Analíticos. ¿Cuál es la situación del VIH/SIDA en Perú? [Internet]. Sistemas Analíticos; February 3, 2023. Available from: https://www.sistemasanaliticos.com/situacion-del-vih-sida-en-peru/
4. Alarcon-Ruiz CA, Vargas M, Heredia P, Huamán MO, Yovera-Aldana M, Mejia CR. Asociación entre conocimiento y prácticas sobre la infección por VIH en mujeres peruanas: análisis secundario de encuesta nacional. Rev Chil Infectol [Internet]. 2020; 37(6): 719-727. Available from: http://dx.doi.org/10.4067/S0716-10182020000600719
5. Centro Nacional de Epidemiología, Prevención y Control de Enfermedades (PE). Situación epidemiológica del VIH-sida en el Perú [Internet]. Lima: MINSA; 2024. Available from: https://www.dge.gob.pe/vih/uploads/nacional_vih.html
6. Ndugwa Kabwama S, Berg-Beckhoff G. The association between HIV/AIDS-related knowledge and perception of risk for infection: a systematic review. Perspect Public Health [Internet]. 2015; 135(6): 299-308. Available from: https://doi.org/10.1177/1757913915595831
7. Corisco M. Heterosexualidad y VIH, una realidad que supone el 30 % de nuevos diagnósticos [Internet]. El País;

January 24, 2022. Available from: https://elpais.com/sociedad/vihda-positiva/2022-01-24/heterosexualidad-y-vih-una-realidad-que-supone-el-30-de-nuevos-diagnosticos.html
8. Center for Disease Control and Prevention. Salud, Educación, Prevención y Autocuidado (SEPA) [Internet]. Atlanta: CDC; 2018. Available from: https://stacks.cdc.gov/view/cdc/149498
9. Peragallo N, DeForge B, O'Campo P, Lee SM, Kim YJ, Cianelli R, et al. A randomized clinical trial of an HIV-risk-reduction intervention among low-income Latina women. Nurs Res [Internet]. 2005; 54(2): 108-118. Available from: http://doi.org/10.1097/00006199-200503000-00005.
10. Peragallo N, Cianelli R, Villegas N, Gonzalez-Guarda R, Williams WO, de Tantillo L. Evaluating a culturally tailored HIV risk reduction intervention among Hispanic women delivered in a real-world setting by community agency personnel. Am J Health Promot [Internet]. 2019; 33(4): 566-575. Available from: https://doi.org/10.1177/0890117118807716
11. 11 Peragallo N, Gonzalez-Guarda RM, McCabe BE, Cianelli R. The efficacy of an HIV risk reduction intervention for Hispanic women. AIDS Behav [Internet]. 2011; 16(5): 1316-1326. Available from: https://doi.org/10.1007/s10461-011-0052-6
12. Cianelli R, De Santis JP, De Oliveira GC, Castro JG, Iriarte E, Baeza MJ, et al. Feasibility and acceptability of SEPA+PrEP: an HIV prevention intervention to increase PrEP knowledge, initiation, and persistence among cisgender heterosexual Hispanic women. PLoS ONE [Internet]. 2024; 19(1): e0296080. Available from: https://doi.org/10.1371/journal.pone.0296080
13. Wingood GM, DiClemente RJ. The ADAPT-ITT model. A novel method of adapting evidence-based HIV interventions. J Acquir Immune Defic Syndr [Internet]. 2008; 47: S40-S46. Available from: https://doi.org/10.1097/QAI.0b013e3181605df1
14. Bandura A. Health promotion from the perspective of social cognitive theory. En: Abraham C, Norman P, Conner M, editores. Understanding and Changing Health Behaviour: From Health Beliefs to Self-Regulation. London: Routledge; 2013. pp. 299-339.
15. Freire P. Pedagogy of the Oppressed. New York: Herder and Herder; 1972.
16. Mamani V, Herrera D, Arias WL. Análisis comparativo de machismo sexual en estudiantes universitarios peruanos y chilenos. Rev Chil Neuro-Psiquiatr [Internet]. 2020; 58(2): 106-115. Available from: http://doi.org/10.4067/S0717-92272020000200106