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Finding Respect and Ending Stigma around HIV (FRESH) intervention in the Dominican Republic: results from a pilot study

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Abstract

Background Stigma is a deleterious force that is associated with poor health outcomes among people with HIV (PWH). The Finding Respect and Ending Stigma around HIV (FRESH) intervention is designed to combat HIV and related stigmas about PWH and their care providers. To evaluate the effects of the Spanish-language FRESH in the Dominican Republic, our team conducted a pilot trial, informed by the stepped-wedge model, at two HIV clinics to ascertain signals of potential value for PWH.

Methods Clinics were randomized to first and second receipt of the intervention; the intervention was delivered over 2 days. In-person tablet-based digital surveys, including validated measures of stigma and discrimination, were administered to PWH (2021–2022, $N=419$) every 6 months aggregated to pre- and post-intervention periods for analysis. Analysis of variance (ANOVA) and general linear modelling were used to evaluate differences in stigma scores. All data collection occurred after an HIV clinic visit. Statistical analyses were performed using SPSS.

Results Mean age of participants was 33.86 (standard deviation [SD] = 9.14; range = 18–70); respondents predominantly identified as male ($N=396$, 94.5%) and multiracial ($N=330$, 90.5%). Significant differences were observed across time, with decreases from pre- to post-intervention in public stigma (mean [M] = 3.92, SD = 1.25 to M = 3.47, SD = 1.41, $p<.001$) and perceived sexual orientation discrimination (M = .23, SD = .27 to M = .10, SD = .18, $p<.001$). Significant differences between clinics were also evident, with higher scores in clinic A compared to clinic B in disclosure concerns (M = 4.31, SD = .84 vs. M = 3.68, SD = 1.26, $p<.001$), perceived sexual orientation discrimination (M = .17, SD = .22 vs. M = .12, SD = .22, $p=.030$), and perceived discrimination related to race/ethnicity (M = .11, SD = .19 vs. M = .05, SD = .15, $p=.002$). The viral suppression rate in these clinics improved between pre-intervention and post-intervention periods, from 78 to 82%, but did not reach statistical significance.

Conclusions Substantive differences in clinics could have impacted the intervention's delivery and impacts. While there were significant associations of intervention experience with reductions in some forms of stigma among PWH, results should be extended cautiously considering the small size of this pilot. Data collection procedures were feasible and acceptable, and evidence was found to warrant full-scale testing of the intervention.

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Keywords Stigma, HIV, Healthcare, Intersectionality, Dominican Republic, Spanish, Caribbean, Intervention

Background

In the Caribbean, there are high levels of stigma against people with HIV (PWH) and sexual and gender minority (SGM) populations, particularly those with HIV [1–4]. Thus, PWH patients (clients) and healthcare workers are unavoidably subject to the effects of structural and cultural notions of right and wrong, including the resulting stigma and discrimination [5–7]. Stigma in clinical settings is particularly concerning since these spaces should be where clients feel safe discussing their status, healthcare needs, personal circumstances that may hinder medication adherence, and identities to receive appropriate healthcare [8, 9]. Multiple studies have shown that when stigma is embedded in clinical settings, stigmatized patients avoid care engagement, and their health may decline [10–12]. Studies have shown that when PWH experience stigma in their clinics, they avoid care, miss visits, become non-adherent to their antiretroviral therapies, and may become virally unsuppressed, leading to poorer health and the potential for ongoing transmission [10–13]. Thus, multi-dimensional stigma reduction, such as enacted stigma, discrimination, and internalized stigma, is a high-priority global health target [14], and mitigating stigma in clinical settings is at the foundation of addressing the global HIV epidemic [13, 15–17].

Over the past two decades, progress has been made to address stigma to improve the health of PWH globally. For example, the *HealthEnabled* intervention leverages digital tools to combat stigma in sub-Saharan Africa, using mobile apps and online platforms to disseminate information and support PWH [18]. Similarly, the *Channels of Hope* initiative engages faith-based organizations and religious leaders to challenge stigma within communities, fostering acceptance and support for PWH through faith-driven approaches [19]. More recently, *Healthy Choices*, a Motivational Interviewing-based intervention, was found to reduce stigma among young PWH in the USA [20]. A recent systematic review identified 11 interventions that aimed to reduce stigma among sexual minority men; gaps were noted in implementation details related to intervention length, delivery, assessment, and strategies [21]. While *Project ACCEPT* [22] was developed to facilitate HIV knowledge and skills in newly diagnosed youth and showed efficacy for stigma reduction in the USA, none of these interventions was tested in global settings. Some online interventions for SGM have indicated individual-level efficacy [23, 24], but few target intersectional stigmas [14]. Most interventions target stigma reduction at the individual level without addressing the source, which may include institutions, policies, and, in the case of clinical settings, healthcare workers [17]. The *Health Policy Project* implemented stigma reduction training for healthcare providers in Kenya and Tanzania, addressing biases and improving patient-centered care [17, 25]. *SPACES*, a project in Puerto Rico, tested the efficacy of a stigma reduction intervention with medical students [26]. Training for service providers is a typical first-line response to stigma reduction. However, to ensure that healthcare workers' behaviors positively impact client health outcomes, client outcomes should be monitored before and after healthcare workers receive stigma-reducing interventions.

The Spanish-language Finding Respect and Ending Stigma around HIV (FRESH) intervention is an adaptation of a healthcare setting stigma reduction intervention originally developed to address HIV stigma in five African countries [27]. African FRESH was conducted in a 2-day workshop that included nurses and PWH from the same clinic. FRESH was developed using Social Cognitive Theory (SCT) and Intergroup Contact Theory (ICT) [28, 29]. SCT is built upon Bandura's model of reciprocal determinism and asserts that persons, their environment, and their behaviors are related. For behavior change to occur, SCT states that the capability to perform the behavior, observational learning, reinforcement(s), expectations, and self-efficacy to achieve change must be present. FRESH also relies on ICT principles, which suggest that an effective way to reduce prejudice between minority and majority groups is via thoughtfully managed, interpersonal contact. ICT purports that the opportunity to understand, appreciate, and develop empathy for different experiences and points-of-view diminishes prejudices. In 2016, FRESH was adapted to the experiences of PWH and healthcare workers in the southern USA [30]. The intervention was reduced from 2 days to 1.5 days and was delivered in a non-healthcare setting. A module on intersectional stigmas was added. Then, in 2022, our team adapted FRESH in Spanish for the Dominican Republic [7]. This FRESH intervention included healthcare workers and SGM with HIV and was extended to 2 days. Healthcare worker inclusion criteria included anyone at the clinic with four or more hours per week of PWH engagement, including front office staff and clinic guards who may be the client's first point of contact at the clinic. Three leaders facilitated the workshops: two PWH and one healthcare worker. The

intervention name was translated to Construir Respeto y Eliminar el Estigma en torno al VIH (CREEV) in Spanish.

Since there are few Spanish-language stigma reduction interventions, and the Caribbean Basin is scientifically underserved, the purpose of this study was to pilot-test the Spanish-language FRESH intervention to ascertain potential for positive impact, while exploring the feasibility and acceptability of the intervention and the research methods, to inform a future full-scale trial of the intervention in the Dominican Republic and other Spanish-speaking contexts. For the current analyses, we hypothesized that (1) receiving the FRESH intervention will have the potential to improve clinic-level stigma and discrimination outcomes based on a diffusion of innovation orientation and (2) data collection procedures at HIV clinics will be feasible and acceptable.

Methods

Study design

The study was a pilot trial of the adapted FRESH intervention in the Dominican Republic, registered on clinicaltrials.gov (NCT04491539). Reporting adheres to the Consolidated Standards of Reporting Trials (CONSORT) guidelines (see Supplementary material 1) [31]. This pilot trial was modelled using a stepped-wedge cluster orientation that balances scientific requirements for robust assessment with logistical constraints and ethical considerations [32, 33], wherein clinics received the intervention sequentially. Up to 10 healthcare workers and 10 PWH received FRESH from each clinic through flyers and word of mouth; participants were recruited from each of our clinics and were not individually randomized. Data for this trial was collected from all PWH receiving care at our partner clinics, pre- and post-intervention, based on diffusion of innovation [34, 35], wherein we hypothesized that healthcare workers who attended the intervention would spread intervention messages to non-participant healthcare workers. The FRESH intervention included modules on, for example, (1) the root and leaves or causes and consequences of stigma, (2) laws and policies that were protective of people with HIV, and (3) exploring intersectional identities and forms of stigma. In turn, both groups would reduce stigmatizing behaviors toward all clients, thus diffusing the impact of the intervention throughout the clinic. Clients who participated in the workshop would also share what they learned with their peers who received care at the same clinic. Therefore, all healthcare workers and clients would not need to attend the intervention to improve outcomes across a clinic. Information on pre-post intervention workshop results (e.g., high satisfaction, high perceived benefit, etc.) is under review elsewhere. The study protocol was previously published with a more detailed description of the study [7].

Participants

Participants included PWH from two HIV clinics in the Dominican Republic. Clinic A was larger and offered clinical services beyond HIV care, while clinic B was more focused on HIV care provision with a focus on key populations. Both were located in Santo Domingo, the national capital. Clinic selection was guided by the federal government. Inclusion criteria for health worker participants were as follows: (1) is minimally 18 years and 0 months of age, (2) works at one of the study sites, (3) interacts with PWH, (4) speaks Spanish, (5) can read Spanish text, and (6) is able and willing to provide informed consent. Inclusion criteria for PWH participants were as follows: (1) is minimally 16 years and 0 months of age, (2) is HIV-positive, (3) speaks Spanish, (4) receives treatment at a study site, and (5) is able and willing to provide informed consent. All eligible participants were recruited from their clinics after a clinic visit by a trained study team member with the support of the front office staff. Further randomization of participants within clinics was not employed as to not create issues of mistrust among clinic patients. Participants received a $10 USD equivalent grocery store voucher as compensation for completing an in-clinic survey. Since no identifying information was collected, we adopted an informed consent process that did not disrupt clinic workflow. A digitized informed consent form was presented to the potential participant on a tablet and required the individual to click “I agree” after reviewing and before proceeding with the survey.

Data collection timeline

Survey data collection occurred at clinics after routine client visits from 2021 to 2022 and was performed 3 months before the intervention was delivered to the first receipt clinic and continued until 3 months after the intervention was delivered to the second receipt clinic. For the first receipt site, cross-sectional data were collected at baseline, 3 months after the FRESH intervention, and 6 months after the FRESH intervention from PWH after their clinic visits. In the second receipt, cross-sectional data were collected at two baseline points and 3 months after the FRESH intervention from PWH after their clinic visits. Viral loads for all clients at both clinics were collected from the Servicio Nacional de Salud (SNS) to assess potential changes across time.

Outcome measures

Multiple dimensions of HIV-related stigma were assessed using the revised 10-item HIV Stigma Scale [36], measured on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The scale includes four distinct dimensions of HIV stigma: (1) personalized stigma (3 items) referring to experiences of rejection or discrimination directly related to one's HIV status; (2) disclosure concerns (2 items) reflecting fears and worries about the potential negative consequences of telling others about one's HIV status; (3) negative self-image (internalized stigma; 3 items) capturing feelings of shame, guilt, or inferiority associated with living with HIV; and (4) concern with public attitudes (public stigma; 2 items) reflecting perceptions of societal-level stigma and negative stereotypes about PWH. Composite scores were calculated by taking the mean of the items for each stigma dimension, with higher scores indicating higher levels of HIV-related stigma. Cronbach's alpha was 0.80 for personalized stigma, 0.40 for disclosure concerns, 0.89 for internalized stigma, and 0.82 for public stigma.

Perceived discrimination related to sexual orientation, race and ethnicity, and HIV status was assessed using Bogart et al.'s perceived discrimination scales [37], each consisting of 10 yes or no items. We calculated composite mean scores by taking the mean of the items. Higher scores indicate greater perceived discrimination related to sexual orientation. Cronbach's alpha was 0.84 for perceived discrimination related to sexual orientation, 0.82 for perceived discrimination related to race/ethnicity, and 0.79 for perceived discrimination associated with HIV serostatus. Viral load was evaluated from SNS data and categorized as under 1000 copies/ml versus ≥ 1000 copies/ml [38]. Blank laboratory records or those containing textual information instead of numeric viral loads were removed before analysis.

Sample size and power

This study was not powered to establish efficacy. Rather, it aimed to provide information on the potential preliminary effects of the adapted Spanish-language FRESH intervention on stigma and related outcomes and the feasibility and acceptability of the procedures. However, a power analysis was conducted to provide additional context for the study's potential to detect meaningful intervention effects via jamovi version 2.3. The analysis indicated that with a total sample of 419 participants ($n_1 = 148$ pre-intervention; $n_2 = 271$ post-intervention), the study had 80% power to detect a minimum effect size of $d = 0.287$ at an alpha level of 0.05.

Statistical analyses

In addition to calculating descriptive statistics for the sample, we examined the associations of the FRESH intervention with stigma and discrimination outcomes self-reported by PWH using analysis of variance (ANOVA) and a general linear model. Independent variables included intervention condition (pre-intervention vs. post-intervention), clinic site (clinic A vs. clinic B), and the interaction term between condition and clinic. The dependent variables were HIV-related stigma and perceived discrimination measures.

All baseline data from the first and second receipt were coded as pre-intervention, while all data collected at 3 months or 6 months after the implementation of the FRESH intervention were coded as post-intervention. We also accounted for the staggered implementation of the intervention using clinic and timepoint indicators, which aligned with the stepped-wedge design (e.g., months 14–16 corresponded to the period where clinic A had received the intervention and clinic B had not). While our study design shares features with stepped-wedge trials, the current analysis was primarily focused on evaluating preliminary signals of effect and exploring feasibility and acceptability of the research methods. Given the exploratory nature of the pilot and the limited number of timepoints and clusters (clinics), we opted for a general linear model to examine average group differences. Analyses were conducted using SPSS version 29; data and statistical code have been included in Supplementary material 2 and Supplementary material 3.

Results

Descriptive statistics are presented in Table 1. Data collection procedures were found to be feasible and acceptable indicated by full and quick enrollment completion at each timepoint without having to extend the data collection period, adjust incentives, or make substantive changes to the data collection protocols. High acceptability and feasibility of the FRESH intervention workshops in this setting have been reported elsewhere [39].

Results of ANOVA revealed significant differences by the intervention condition (see Table 2), $F(7, 409) = 9.81$, $p < 0.001$, $\eta_p^2 = 0.14$, with decreases from pre- to post-intervention in public stigma and perceived discrimination related to sexual orientation. Internalized stigma increased from pre- to post-intervention. Differences between clinics were also significant, with higher scores in clinic A compared to clinic B in disclosure concerns, perceived discrimination related to sexual orientation, and perceived discrimination related to race/ethnicity. Internalized stigma was significantly higher in clinic B than in clinic A. The estimated viral suppression rate at the under 1000 copies/ml level improved from 78% at

Table 1 Descriptive statistics for pre- and post-intervention

Variable	Total *N* (%)/M (SD)	Pre-intervention *N* (%)/M (SD)	Post-intervention *N* (%)/M (SD)
Site			
Clinic A	237 (56.6)	80 (54.1)	157 (57.9)
Clinic B	182 (43.4)	68 (45.9)	114 (42.1)
Age	33.86 (9.14)	34.66 (8.91)	33.42 (9.25)
Gender			
Cis man	396 (94.5)	136 (91.9)	260 (95.9)
Cis woman	3 (0.7)	0 (0.0)	3 (1.1)
Trans man	4 (1.0)	2 (1.4)	2 (0.7)
Trans woman	14 (3.4)	9 (6.1)	5 (1.8)
Non-binary	1 (0.2)	1 (0.7)	0 (0.0)
Prefer not to answer	1 (0.2)	0 (0.0)	1 (0.4)
Sexual orientation			
Heterosexual (attraction to the opposite sex)	23 (5.5)	9 (6.1)	14 (5.2)
Bisexual (attraction to both sexes)	72 (17.2)	21 (14.2)	51 (18.8)
Homosexual (attraction to the same sex)	116 (27.7)	116 (78.4)	0 (0.0)
Asexual	1 (0.2)	0 (0.0)	1 (0.4)
Queer	1 (0.2)	0 (0.0)	1 (0.4)
Prefer not to answer	6 (1.4)	2 (1.4)	4 (1.5)
Race			
Black	43 (10.4)	9 (6.1)	34 (12.8)
Multi	330 (80.1)	121 (82.3)	209 (78.9)
White	39 (9.5)	17 (11.6)	22 (8.3)
Education			
< High school	12 (2.9)	11 (7.4)	1 (.4)
≥ High School	407 (97.1)	137 (92.6)	270 (99.6)
Religion			
Catholic	255 (61.6)	83 (57.2)	172 (63.9)
None	99 (23.9)	43 (29.7)	56 (20.8)
Other	60 (14.5)	19 (13.1)	41 (15.2)
Importance of religion			
Important	352 (84.0)	107 (72.3)	245 (90.4)
Not important	67 (16.0)	41 (27.7)	26 (9.6)
Sex worker (in the last 5 years)			
Yes	119 (28.4)	41 (27.7)	78 (28.8)
No	300 (71.6)	107 (72.3)	193 (71.2)
Migrant			
Yes	47 (11.2)	19 (12.8)	28 (10.3)
No	372 (88.8)	129 (87.2)	243 (89.7)
Time since HIV diagnosis			
Under 5 years	213 (55.8)	72 (49.7)	141 (59.5)
5 or more years	169 (44.2)	73 (50.3)	96 (40.5)
Satisfaction with in-clinic visit			
Very satisfied	350 (83.5)	120 (81.1)	230 (84.9)
< Very satisfied	69 (16.5)	28 (18.9)	41 (15.1)

M mean, *SD* standard deviation

Table 2 Differences in stigma and discrimination measures by intervention and clinic

Variable	Main effect						Interaction effect					
	Intervention		*p*	Clinic		*p*	Clinic A		*p*	Clinic B		*p*
	Pre	Post		A	*B*		Pre	Post		Pre	Post	
	M (SD)	M (SD)		M (SD)	M (SD)		M (SD)	M (SD)		M (SD)	M (SD)	
Personalized HIV stigma	2.61 (1.26)	2.61 (1.32)	.709	2.61 (1.18)	2.61 (1.43)	.329	2.35 (1.26)	2.74 (1.12)	.026	2.92 (1.19)	2.43 (1.54)	.013
HIV disclosure concerns	4.14 (1.20)	3.99 (1.02)	.096	4.31 (.84)	3.68 (1.26)	<.001	4.41 (.88)	4.26 (.82)	.302	3.82 (1.42)	3.61 (1.15)	.188
Internalized HIV stigma	1.65 (.86)	1.96 (1.19)	.005	1.74 (.93)	2.01 (1.26)	.006	1.46 (.79)	1.88 (.97)	.005	1.87 (.88)	2.08 (1.44)	.200
Public HIV stigma	3.92 (1.25)	3.47 (1.41)	<.001	3.76 (1.24)	3.47 (1.51)	.053	3.98 (1.07)	3.65 (1.31)	.072	3.85 (1.43)	3.24 (1.52)	.003
Perceived discrimination related to sexual orientation	.23 (.27)	.10 (.18)	<.001	.17 (.22)	.12 (.22)	.030	.24 (.25)	.13 (.20)	<.001	.21 (.28)	.07 (.14)	<.001
Perceived discrimination related to race/ethnicity	.10 (.22)	.08 (.15)	.134	.11 (.19)	.05 (.15)	.002	.11 (.22)	.11 (.18)	.873	.08 (.22)	.03 (.08)	.062
Perceived discrimination related to HIV serostatus	.10 (.20)	.09 (.16)	.317	.11 (.19)	.07 (.15)	.133	.11 (.19)	.11 (.19)	.891	.10 (.20)	.06 (.12)	.143

M mean, *SD* standard deviation

pre-intervention to 82% at post-intervention; however, this improvement was not statistically significant.

The interaction term between condition and clinic was also significant, indicating that the changes from pre- and post-intervention differed at the two clinics. Participants in clinic B had significantly lower scores at post-intervention in personalized stigma, public stigma, and perceived discrimination related to sexual orientation than those scores measured at pre-intervention. These findings suggest that the FRESH intervention mitigated these forms of stigma and discrimination among participants in clinic B but not in clinic A. In contrast, perceived discrimination related to sexual orientation was significantly lower post-intervention compared to pre-intervention in clinic A, indicating that the intervention was associated with significant reductions in perceived discrimination related to sexual orientation among participants in clinic A but not in clinic B. Lastly, personalized stigma and internalized stigma at post-intervention in clinic A were higher than personalized stigma and internalized stigma at pre-intervention, suggesting that respondents in clinic A felt more affected by personalized and internalized stigma, whereas participants in clinic B did not.

Discussion

Findings indicate the potential of the FRESH intervention to reduce HIV-related stigma and perceived discrimination in clinical settings in the Dominican Republic, similar to findings in the southern USA. However, unlike the original FRESH study which was a multi-country full-scale trial in Africa [27], findings presented herein represent the work of a pilot study in preparation for a national randomized controlled trial. Our analyses of pilot data of this intervention in the Dominican Republic, adapted for Spanish-speaking populations and tailored to address intersectional stigmas faced by SGM with HIV, indicated that intervention implementation was associated with reduced public stigma and perceived discrimination related to sexual orientation. These results build upon previous iterations of FRESH in other contexts [27, 30], underscoring the intervention's adaptability across different cultural and linguistic settings.

The statistically significant reduction in public stigma and perceived discrimination post-intervention suggests that FRESH's focus on actionable drivers and theoretical foundations, SCT and ICT, may be associated with behavior change among healthcare workers, leading to improved outcomes for PWH [40]. Including PWH and healthcare workers in the same workshops potentially facilitated empathy and understanding, as posited by ICT, while the structured, group-based format provided opportunities for observational learning and reinforcement, key components of SCT. However, the unexpected increase in internalized stigma post-intervention warrants further investigation. This counter-intuitive finding may reflect a heightened awareness of stigma among PWH following the intervention, a documented phenomenon [39, 40], as PWH become more attuned to their feelings related to stigma and discrimination. Alternatively, it may indicate the need for additional individualized support beyond what is provided in FRESH to address internalized stigma, which is often deeply entrenched and may require more sustained interventions or directed attention given specifically to PWH, separate from healthcare workers. While changes in disclosure concerns, perceived discrimination related to race/ethnicity, and perceived discrimination related to HIV serostatus were not statistically significant, outcomes improved, and stigmas were reduced, a promising result for a pilot trial.

The differential outcomes between clinic A and clinic B suggest that contextual factors, such as clinic culture or baseline levels of stigma, may influence the intervention's mechanism of action. For instance, clinic B showed more notable reductions in personalized stigma, public stigma, and perceived discrimination, while clinic A experienced increases in personalized and internalized stigma. While both clinics provided HIV care to a range of populations and were located in the same city, Santo Domingo, unmeasured features—including, for example, physical space layout or staff turnover, may have created uneven outcomes across these two similar but distinct settings. These disparities highlight the importance of tailoring interventions to specific clinical environments and addressing structural barriers perpetuating stigma.

While this study provides valuable insights into the potential value of the FRESH intervention, limitations must be acknowledged. First, the pilot nature of the research and its small sample size limit the generalizability of the findings. The study was not powered to detect statistically significant differences in stigma outcomes, and the results should be interpreted as preliminary evidence to inform future larger-scale trials. Second, due to the small number of clusters and limited timepoints, we used a general linear model rather than a mixed-effects model, which may limit the ability to fully account for the stepped-wedge design; this analytic choice should be considered when interpreting findings. The reliance on self-reported measures of stigma and discrimination introduces the potential for social desirability bias, particularly given the sensitive nature of the topics. Additionally, the internal consistency of the disclosure concerns subscale was notably low ($\alpha = 0.40$), which may be partially attributed to the limited number of items and may have resulted in measurement error within this subscale. Findings related to disclosure concerns should be

interpreted with caution, as the reduced reliability may attenuate observed associations or obscure meaningful relationships. The study was conducted in only two clinics in the Dominican Republic, which may not fully represent the diversity of clinical settings or cultural contexts in the region. The participating clinics were selected due to their high client volume, capacity to be involved in research, and track record of working collaboratively with local HIV organizations. Clinics without these characteristics may have had more challenges in conducting the study. Much of this work occurred during the COVID-19 pandemic and was subject to related disruptions. Despite these limitations, this study provides foundational evidence for adapting and implementing stigma reduction interventions in Spanish-speaking, resource-limited settings. Future research should address these limitations by incorporating larger samples, testing intervention effects across more clinics, examining organizational considerations and contexts [41], conducting mechanistic analyses to elucidate pathways of different stigma dimensions such as perceived stigma and disclosure concerns [42], exploring the role of emotions in stigma reduction [43], and incorporating mixed-methods approaches [44], to understand better the mechanisms of change and contextual factors influencing intervention outcomes.

Conclusions

This study provides promising evidence for the Spanish-language FRESH intervention on reducing HIV-related stigma and perceived discrimination in the Dominican Republic. The intervention's potential success in addressing public stigma and perceived discrimination underscores the value of group-based approaches that integrate PWH and healthcare workers. However, the variability in outcomes across clinics suggests the need for further refinement and contextual adaptation of the intervention. Caution should be applied in extending findings from this pilot study of two clinics. Future research should explore strategies to address internalized stigma, such as incorporating individual counseling or digital support alongside group-based workshops. Additionally, larger rigorous trials with appropriate designs (cluster randomized or stepped wedge) and larger sample sizes are needed to assess the sustained impact of FRESH on the robust assessment of clinical outcomes, such as medication adherence and viral suppression. By addressing stigma at multiple levels, interventions such as FRESH can potentially transform clinical environments into spaces of respect and support. The adaptation of FRESH for Spanish-speaking populations fills a critical gap in stigma reduction interventions and offers a scalable model for other underserved and high-stigma settings.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s44263-025-00219-w.

Supplementary material 1. CONSORT Checklist.

Supplementary material 2. Study Data.

Supplementary material 3. SPSS Code.

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Authors' contributions

HB was the protocol Contact Principal Investigator (Conceptualization: Lead; Funding acquisition: Lead; Investigation: Lead; Methodology: Lead; Project Administration: Lead; Resources: Lead; Writing - Original Draft: Lead; Writing - Review and Editing: Lead). JMT and RPR were Co-Principal Investigators (Conceptualization: Equal; Funding acquisition: Equal; Investigation: Equal; Methodology: Equal; Project Administration: Equal; Resources: Equal; Writing - Original Draft: Equal; Writing – Review and Editing: Equal). JW was responsible for community engagement and civil society (Investigation: Equal). IY and CLB participated in data collection and analysis, including contributions to writing (Investigation: Supporting; Writing - Review and Editing: Supporting). NVD, SN, LN were senior scholars who participated in framing and manuscript writing (Writing - Review and Editing: Supporting). All authors read and approved the final manuscript.

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Data availability

The dataset and code that support the findings of this study will be prepared for deposit in a publicly accessible repository, in accordance with federal data and community standards. Until the repository upload is complete, de-identified summary data and analytic code underlying this article will be made available upon reasonable request to the study statistical analyst. Dr. Ibrahim Yigit at iy23c@fsu.edu.

Declarations

Ethics approval and consent to participate

Study approval was provided by the Institutional Review Boards of Universidad Iberoamericana (UNIBE, CEI2020-32), University of Alabama at Birmingham (IRB-300005657), and Florida State University (STUDY00003459). Prior to obtaining informed consent, potential participants were informed of the goals of this study, benefits of participating in research, and how their feedback could potentially impact the related science. Written informed consent was obtained from all study participants, and this study follows guidelines outlined in the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

RPR is an Editorial Board Member of BMC Global and Public Health. The remaining authors declare no competing interests.

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