

Sustainment and adaptation of systems navigation and psychosocial counseling across HIV testing clinics in Vietnam: A qualitative assessment

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Abstract

Background

Few evidence-based interventions have been successfully scaled up and sustained long-term. Within an implementation trial testing strategies for scale-up of the Systems Navigation and Psychosocial Counseling (SNaP) intervention for people who inject drugs (PWID) with HIV across HIV testing clinics in Vietnam, we sought to assess if the implementation of SNaP was sustained after study support ended and to identify factors, including adaptations, that affected SNaP sustainment.

Method

Across all 42 SNaP clinics, we surveyed clinic staff at 6–10 months post-study completion to assess SNaP sustainment. We purposively selected six high and six low-sustaining clinics and conducted 31 in-depth interviews with clinic staff ($n = 23$) and clinic directors ($n = 8$). Interviews were coded and analyzed using thematic analysis informed by the Integrated Sustainability Framework. Matrices were used to compare themes across high and low-sustaining clinics.

Results

1/12 clinics sustained all of SNaP's core components, 2/12 would continue to sustain SNaP if they had new PWID patients, and the remainder did not fully sustain SNaP but continued conducting a modified version, including shorter or fewer SNaP sessions, tailoring SNaP to participants' specific needs, and conducting SNaP-style counseling for all clients. Facilitators of sustainment included leadership directives to clinic staff around SNaP sustainment, clinicians' belief in SNaP's effectiveness, and SNaP's perceived fit with clinic activities and mission. Major barriers to SNaP sustainment included lack of funding for PWID outreach activities, time, staff, training continuity, and systemic challenges with getting PWID into care, such as poverty and lack of transportation.

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Conclusions

We identified the challenge of sustaining the SNaP intervention long-term, the ubiquity of intervention adaptations, and multi-level barriers and facilitators to intervention sustainment. These findings demonstrate the need for sustainment strategies and could inform trials of strategies to improve the longevity of effective HIV interventions for populations that are disproportionately affected by this epidemic.

Plain Language Summary

Sustainment and Adaptation of an HIV Intervention across HIV Testing Clinics in Vietnam: A Qualitative Assessment.

Background: Few evidence-based interventions have been successfully scaled up and sustained long-term. Within a trial testing strategies for scale-up of the Systems Navigation and Psychosocial Counseling (SNaP) intervention for people who inject drugs (PWID) with HIV across HIV testing clinics in Vietnam, we sought to assess if the implementation of SNaP was sustained after study support ended and to identify factors, including adaptations, that affected SNaP sustainment. **Method:** In 42 SNaP clinics, we surveyed staff to assess SNaP sustainment. We selected six high and six low-sustaining clinics and conducted 31 interviews with staff ($n = 23$) and directors ($n = 8$). Interviews were coded and analyzed to identify themes, informed by a framework called Integrated Sustainability Framework. We also compared themes across high and low-sustaining clinics. **Results:** 1/12 clinics sustained all the essential elements of SNaP, 2/12 would continue to sustain SNaP if they had new PWID patients, and the remainder did not fully sustain SNaP but continued conducting a modified version, including shorter or fewer SNaP sessions, tailoring SNaP to participants' needs, and conducting SNaP-style counseling for all clients. Sustainment facilitators included leadership directives to staff around SNaP sustainment, clinicians' belief in SNaP's effectiveness, and SNaP's perceived fit with clinic activities and mission. SNaP sustainment barriers included lack of funding for PWID outreach, time, staff, training continuity, and challenges with getting PWID into care, such as poverty and lack of transportation. **Conclusions:** We identified the challenge of sustaining SNaP long-term, the ubiquity of intervention adaptations, and barriers and facilitators to intervention sustainment. These findings demonstrate the need for sustainment strategies and could inform trials of strategies to improve the longevity of effective HIV interventions for populations that are disproportionately affected by this epidemic.

Keywords

sustainment, adaptations, HIV, qualitative methods

Introduction

People who inject drugs (PWID) are a Joint United Nations Programme on HIV/AIDS (UNAIDS) key population who experience significantly higher HIV incidence and mortality than the general population (Garriga et al., 2015; Parashar et al., 2016; UNAIDS, n.d.). The HIV epidemic among this population is fueled by low access to sterile injection equipment and low rates of HIV testing and antiretroviral therapy (ART) uptake and adherence (Heimer et al., 2017; Karch et al., 2016; Lesko et al., 2016). HIV outcome disparities among PWID are driven by social and structural challenges to HIV prevention and care, including stigma, poverty, lack of access to care, and complex healthcare systems (Thi Thanh Huong et al., 2018; Tomori et al., 2014).

Several interventions are effective for addressing these challenges, including Systems Navigation and Psychosocial Counseling (SNaP), an intervention proven effective in HIV Prevention Trials Network (HPTN) 074 (Reddon et al., 2019). SNaP helps PWID who are newly diagnosed or out-of-care navigate complex healthcare systems and challenges of a new HIV diagnosis and living with HIV. SNaP includes two systems navigation and at least one psychosocial counseling session with as-needed booster sessions. HPTN 074 was a randomized control vanguard study conducted

from 2015 to 2018 in Ukraine, Vietnam, and Indonesia. In that study, SNaP improved ART and medications for opioid use disorder (MOUD) uptake and use, viral suppression, and mortality outcomes among PWID (Miller et al., 2018a, 2018b).

While SNaP shows promise for reducing the burden of HIV in this population, fewer than 50% of effective interventions make it to general usage (Bauer & Kirchner, 2020). Furthermore, sustainment of evidence-based interventions (EBIs) is often poor. In low and middle-income countries (LMICs) and disadvantaged communities in high-income countries, only 43% of EBIs were successfully sustained 2 years after implementation (Hodge & Turner, 2016). This failure of sustainment represents significant losses in time, resources, and community trust in future research projects (Pluye et al., 2004; Wiltsey Stirman et al., 2012). Implementation science seeks to address implementation and sustainment challenges through testing strategies to improve EBI implementation (Bauer & Kirchner, 2020; Pantoja et al., 2017). But there is less understanding of what happens to interventions once implementation trials end, including adaptations (Shelton et al., 2018). Additionally, while there are frameworks that categorize factors influencing EBI sustainment (Lennox et al., 2018; Luke et al., 2014; Shelton et al., 2018), how constructs within these frameworks affect

sustainment is less clear (Shelton et al., 2018; Shelton & Lee, 2019).

To improve understanding of EBI sustainment and adaptation, we conducted a qualitative study to evaluate SNaP sustainment across 42 HIV testing clinics in Vietnam. Our research questions included: (1) whether implementation of SNaP was sustained after study support ended; (2) what adaptations to SNaP were made; (3) how these adaptations affected sustainment; and (4) what additional factors influenced sustainment of SNaP.

Method

Study Setting

In Vietnam, PWID are disproportionately affected by the HIV epidemic, with an HIV prevalence of 9.1% compared to 0.3% among the general population (UNAIDS, 2023). Despite the Vietnamese government having invested money in voluntary HIV testing, peer outreach, and needle and syringe programs, PWID still face barriers to care, such as limited HIV knowledge, stigma, and financial challenges (Go et al., 2019; Nguyen Ha et al., 2010; Nguyen et al., 2019; Thi Thanh Huong et al., 2018; Tomori et al., 2014). As a result, PWID continue to experience lower HIV testing, awareness, and ART coverage, and higher mortality rates, than the rest of the population (UNAIDS, 2022, 2023; Vinh et al., 2021).

Parent Study Design

The parent study was a two-arm cluster randomized implementation trial (NCT03952520, multiple PIs: Go and Miller) comparing the effect of two approaches to identify implementation strategies for SNaP scale-up: a standard (SA arm) compared to a tailored approach (TA arm). The study was conducted from 2020 to 2023 in 42 HIV testing sites across 10 provinces in Vietnam. In the SA

arm, all sites received the same package of implementation strategies. In the TA arm, in addition to the standard strategy package, each site underwent a process of identifying barriers to SNaP implementation at their clinic and then choosing strategies to employ to address them. Primary study outcomes were clinic fidelity to SNaP and ART uptake among PWID participants (Nguyen et al., 2020). See Nguyen et al. (2020) for further parent trial details.

In both study arms, navigators/counselors delivered SNaP to eligible PWID patients. At the clinics, HIV testing counselors were trained as SNaP counselors and systems navigators. Sometimes the SNaP counselor and navigator were the same person depending on the personnel arrangement at a site. SNaP's core components included two in-person or telephone-based systems navigation sessions and one ~30–45 min in-person psychosocial counseling session, with additional sessions available based on patients' needs. Navigation and counseling sessions were delivered within 8 and 4 weeks, respectively, of participants initiating SNaP. Additionally, SNaP was designed to be flexible to patients' needs.

Qualitative Study Design and Recruitment

Purposive sampling for the study was informed by surveys with up to six SNaP staff (navigators/counselors, clinic directors, and other SNaP staff) in all 42 clinics. These participants were re-surveyed at 6–10 months post-parent study using the three-item Provider REport of Sustainment Scale (PRESS), which assesses the extent to which providers have continued implementing an EBI. PRESS uses five-point Likert scale response options with responses ranging from 0=*not at all* to 4=*a great extent* (scale score range: 0–12) (see Figure 1 for slightly adapted PRESS scale) (Moullin et al., 2021). Providers' scores on sustainment of the full SNaP intervention were averaged across clinic staff within each site and clinics were dichotomized at the sample's median as "high" or

Figure 1

Provider REport of Sustainment Scale (Moullin et al., 2021)

<p>The following questions ask about the use of SNaP in your clinic. Please indicate the extent to which you agree with the following items where 0 = not at all, 1= to a slight extent, 2= to a moderate extent, 3= to a great extent, 4= to a very great extent</p> <ol style="list-style-type: none"> 1. Staff use SNaP as much as possible when appropriate 2. Staff continue to use SNaP throughout changing circumstances 3. SNaP is a routine part of our practice. <hr/> <p>Response options: 0 = not at all, 1= to a slight extent, 2= to a moderate extent, 3= to a great extent, 4= to a very great extent</p>
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“low” sustainers. Based on clinics’ scores (average score = 8.55, range = 4–12), we selected six of the highest and six of the lowest sustainer clinics for in-depth interviews (Palinkas et al., 2015). At each clinic, interviews were conducted with the clinic director and one-to-two SNaP staff (including SNaP counselors, navigators, and phlebotomists). These participant groups were selected because they were most responsible for supporting SNaP delivery and sustainment. Research staff invited clinic staff by email to participate.

Data Collection

SMB developed a semi-structured interview guide to elicit clinic staff’s experiences with SNaP since the study ended, including if they had continued implementing SNaP and factors influencing SNaP sustainment. Separate guides were developed for high and low-sustaining clinics and clinic directors and navigators/counselors. Guides were informed by the Framework for Reporting Adaptations and Modifications (FRAME), a framework for characterizing intervention adaptations (Wiltsey Stirman et al., 2019), and Normalization Process Theory (NPT), a theory of how interventions become integrated into routine practice within clinics (May & Finch, 2009) (see Supplementary File 2 for navigator/counselor interview guide).

Interviews were conducted in Vietnamese by two female research assistants who have extensive qualitative interviewing experience. They were conducted in private over Zoom, and participants completed informed consent and a demographic assessment before beginning the interview. The study team met periodically during interviewing to monitor data saturation and update the interview guide in response to emerging themes. Participants were compensated (500,000 VND, ~20 USD). Interviews were audio-recorded, transcribed, and translated into English. The study was approved by the University of North Carolina at Chapel Hill, Hanoi Medical University, and Viet Nam Ministry of Health Institutional Review Boards.

Analysis

SMB first read through the interview transcripts and memoed about perceptions of the data and emergent themes. Informed by the interview questions and emergent themes, she developed a codebook and used Dedoose for coding (Dedoose, n.d.). SMB and ALS double-coded 10% of the transcripts and met to resolve coding discrepancies and refine codes (Raskind et al., 2018). SMB then re-reviewed the transcripts, incorporated the finalized coding resolutions, and coded the remaining transcripts. Guided by thematic analysis, she created summaries for each code and developed qualitative matrices, which summarized data by themes and participants, to compare sustainment barriers and facilitators across participants and within clinics (Gibbs, 2007).

Themes were further organized by domains of the Integrated Sustainability Framework (ISF), which includes multi-level factors that impact sustainment (Shelton et al., 2018). During analysis, we defined SNaP sustainment within a clinic as at least one navigator/counselor reporting that they had continued to implement, or would implement if they had a PWID patient, all core components of SNaP. If all navigators/counselors within a clinic described not conducting at least one of SNaP’s core components, we defined this as not full sustainment.

Results

From October to November 2023, we recruited eight clinic directors (4/12 were unavailable), 20 SNaP navigators/counselors, and three other clinic staff for a total of 31 interviews across the 12 clinics. Eight TA sites (four high sustainers and four low sustainers) and four SA sites (two high sustainers and two low sustainers) were included. Interviews lasted a median of 58 min (range = 40 min to 1 hr 40 min). Median participant age was 43 years old (range = 31–59 years; Table 1). Participants had worked a median of 11 years (range = 2–30 years) in HIV prevention and treatment, and among counselors and phlebotomists, participants had a median of 11 years of counseling experience (range = 3–22 years).

SNaP Sustainment

Based on strict maintenance of all of SNaP’s core components, 1/12 clinics fully sustained SNaP. 9/12 clinics did not clearly sustain SNaP in its entirety. Two clinics reported they would continue to sustain SNaP if they had a PWID participant but had not had any new PWID patients since the trial ended. However, many clinics

Table 1
Sustainment Interview Participant Demographics.

	Total (n = 31) Median (range) or n (%)
Age in years (median)	43 (31–59)
Sex (%)	
Male	11 (35)
Female	20 (65)
Role (%)	
Counselor/navigator	20 (65)
Site director	8 (26)
Phlebotomist	3 (9)
Years of HIV/AIDS experience (median)	11 (2–30)
Years of HIV counseling experience (among navigators/counselors and phlebotomists) (median)	11 (3–22)

Note. HIV = human immunodeficiency virus; AIDS = acquired immunodeficiency syndrome.

sustained some components of SNaP (described below) or reported mostly returning to the Ministry of Health (MoH) guidelines for HIV counseling and referral but continuing some SNaP elements. Additionally, sustainment was sometimes navigator/counselor-specific, so in some clinics, one navigator/counselor reported sustaining components of SNaP while others no longer conducted SNaP or clinic directors thought that SNaP had been sustained when navigators/counselors were no longer providing it. One navigator/counselor explained that intra-clinic discrepancies may be due to a disconnect in communication between directors and SNaP navigators/counselors:

The leaders don't know much. They only know that we have some research in our department, that's all. They don't know much about the counseling content.

A director at another site affirmed this sentiment:

This is difficult to evaluate because, for example, it's the same with any counselor, it's hard for me to judge whether they've followed every step or not, except in cases where, for example, you sit and attend the session directly.

SNaP Adaptations

Shortening

One of the most common adaptations to SNaP was shortening counseling session length and/or providing less detailed sessions. Navigators/counselors reported that currently, their SNaP counseling sessions ranged from 5–10 to 20–40 min (average = 15 min). Most frequently, these session-length adaptations were made because navigators/counselors perceived not having time to conduct longer sessions. One director described how he viewed shortening sessions as a natural part of SNaP being sustained:

However, when there is no [study] inspection or monitoring report, we still integrate it because we have already learned it, we have done it, and it becomes routine. But we also reduce it. We don't have to report that to anyone. [SMILES] Even if we do it, it's often not as perfect as before.

Another frequently cited reason for shortening SNaP sessions was that clients had good HIV knowledge, given that there had been many HIV educational campaigns, and some participants had already researched HIV beforehand, so did not need in-depth counseling; this adaptation was more fidelity consistent as it aligned with the intervention's flexible design.

Tailoring

Another common adaptation was tailoring content to participant needs. Tailoring adaptations that aligned with

SNaP's flexibility included giving more in-depth counseling to new patients than care re-engaged patients and modifying session content order. In contrast, adaptations that were more fidelity inconsistent included cutting material if patients did not want to engage and reducing session length if patients did not have time for longer sessions. As one navigator/counselor shared:

I think we're selective [with SNaP counselling content] ... if there is a new patient, that counselor will also select the content that needs to be discussed first. For example, in the field of ... new patients ... those who come back, for example, or they do not know about the medicine, about its side effects, the counselors will advise or will choose the main content to counsel patients. Or there may be follow-up sessions for additional counseling ... we don't go through all the content in a mandatory psychological counseling session that lasts within 30 min, for example.

Additionally, one navigator/counselor described needing to conduct longer sessions with patients in remote regions of the country who wanted to find treatment locations outside of their area to avoid discrimination.

Integrating

Integrating the two systems navigation sessions into one was also a frequently reported adaptation and was often due to challenges with getting patients to come back for or engage in additional sessions. Another reason that some navigators/counselors gave for not providing more sessions after they had made a treatment referral was that they felt like the ART clinic was fully responsible, after referral, for the patient's ART treatment maintenance.

SNaP for Everyone

Other adaptations included providing "SNaP for everyone," meaning that navigators/counselors were providing SNaP "according to the guiding spirit of the project" for all of their clients, such as SNaP clients' partners or men who have sex with men (MSM) clients. This included providing SNaP-style counseling, meaning more in-depth counseling and warm hand-offs to treatment centers, for all patients. Reasons that navigators/counselors gave for providing "SNaP for everyone" included that SNaP had been integrated into their clinics' processes or that they found SNaP to be so helpful that they wanted to apply it to all of their clients.

Factors Influencing SNaP Sustainment

We organized participants' perceptions of the factors that influenced SNaP sustainment by the six domains of the ISF: (1) outer contextual factors (the sociopolitical and funding environment *in which* the HIV testing clinics reside); (2) inner contextual factors (the structural, political, and cultural contexts *within* the HIV testing clinics);

(3) processes (activities that are done to encourage sustainability); (4) characteristics of interventionists; (5) characteristics of the intervention; and (6) characteristics of the population (see Figure 2 for a conceptual model of SNaP adaptations and sustainment).

Outer Contextual Factors

Funding. Participants discussed funding as one of the most essential contextual factors that facilitated sustainment and reported implementation challenges related to receiving less domestic and international monetary support for HIV-related work than in previous times. Without this support, participants stated that navigators/counselors would be less enthusiastic in their SNaP counseling and would need to re-allocate their resources to focus on all clients equally instead of on PWID. As one clinic director described:

Localities now even have no budget to support poor and near-poor households let alone to support the drug addicts ... the spirit is willing, but the flesh is weak.

Several participants noted that most or all of their clinic's HIV funding came from outside projects, so when these projects ended, they were also no longer able to provide much patient outreach and testing and could

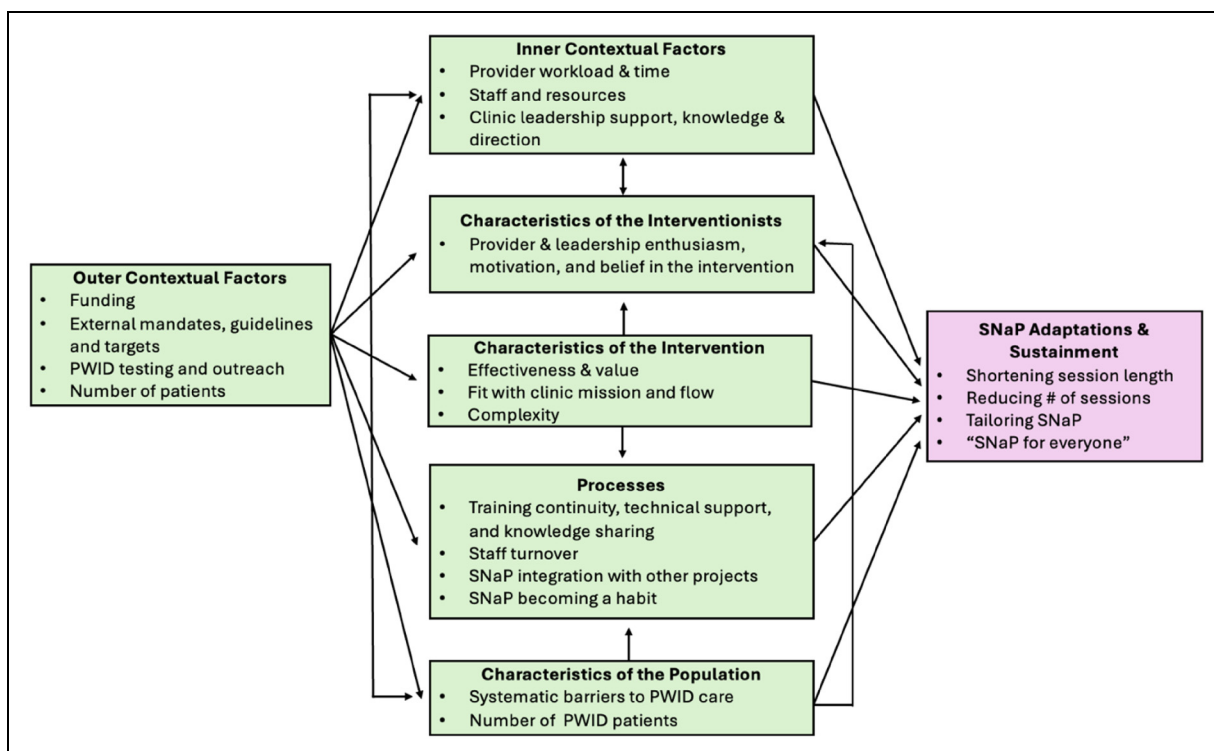
only focus on ART treatment. Without peer outreach workers, participants were concerned that it would be extremely hard for them to get PWID into care, as: "They [the outreach workers] would not do it for nothing because they have other things to do. The peer collaborators would not just approach those subjects alone [without being paid]."

Additionally, participants noted that more funding for navigators/counselors to support their travel to conduct outreach and testing and for patients' transport to the clinics was important and would grow even more important if the peer outreach funding ended. Because funding was such a big challenge, participants noted that a major facilitator of SNaP sustainment was when clinics integrated SNaP with other projects (e.g., Global Fund) that paid for peer supporters to conduct case finding and referrals for PWID.

External Leadership & Priorities. Participants described external leadership and priorities primarily as facilitators to sustainment. They highlighted how mandates, support, and targets from a higher authority played a major role in SNaP becoming a routine practice. These included formal mandates or guidelines from the Vietnam Authority on HIV/AIDS Control (VAAC) (the part of the MoH responsible for controlling HIV), Centers for Disease Control (CDC), or Department of

Figure 2

Conceptual Model of SNaP Sustainment and Adaptation



Note. SNaP = Systems Navigation and Psychosocial Counseling.

Health around continued implementation of SNaP so that it could become policy. As one navigator/counselor described:

After such kind of intervention finishes, then, in order to maintain it, we must need some sort of a routine protocol ... if we simply say that it is not mandatory, then we would do it whenever we remember it only. Or we just counsel on those clients who we feel we need to counsel them ... it would be the best if it is guided by the Ministry of Health. Then, all that we need to do is to follow that guideline properly.

Other factors that participants noted helped them to continue sustaining SNaP included having external leaders (e.g., CDC), checking in and reminding them to continue implementing SNaP, which seemed to occur most in mountainous regions. Other clinics were motivated to continue implementing SNaP because they viewed it as being aligned with national targets, like the 90-90-90 goals.

Inner Contextual Factors

Time. A commonly cited barrier to sustainment across the clinics was a lack of time. Even though the number of PWID patients was not necessarily large, navigators/counselors had a large overall number of patients, making it often impossible to spend extra time providing tailored counseling and support to PWID. One navigator/counselor noted that this problem was important; they perceived that PWID were considered difficult to counsel, as many PWID required time to open up about their drug use. Consequently, they needed more counseling for SNaP to be effective.

One factor that was highly beneficial to care but meant that navigators/counselors often were unable to spend as much time counseling was same-day ART initiation. One navigator/counselor reported that due to same-day treatment, they could only spend 5–10 min counseling their patients because there were many other administrative processes that patients required. In general, navigators/counselors reported having too many other tasks and not having enough time to read the SNaP manual, which often led to SNaP adaptations, including cutting down SNaP session length and just doing what they could remember of SNaP. Related to the outer contextual barrier of funding, because of a lack of time and money, when the SNaP project support ended, navigators/counselors did not have the motivation to travel to conduct PWID testing and outreach, which reduced the number of PWID coming into care.

Staff and Resources. Lack of staff and resources was another barrier to SNaP sustainment, which directly led to the challenge described above of lack of time. Not having enough staff meant that it was hard for navigators/counselors to do extra work like SNaP, even though they generally did not perceive SNaP as independently being too much work. Challenges included having few

staff members to serve hundreds of clients, only having part-time staff, which meant that there was not always someone at the clinic who could deliver SNaP, and staff members leaving, causing the remaining staff to have heavy workloads. Additionally, in terms of material resources, navigators/counselors at two clinics noted that they no longer had private counseling rooms since SNaP ended, which made it hard for them to continue conducting SNaP.

Internal/Clinic Leadership Support. Leadership support was described both as a major reason why SNaP ended or was sustained across clinics. Participants described that one of the reasons why SNaP ended at their clinic was because of lack of leadership direction in terms of what was supposed to happen with SNaP after the study was over. In clinics where there was low leadership support, clinic leaders often stopped requiring providers to report SNaP implementation updates. Without external pressure from clinic leaders, navigators/counselors shared that they were less motivated to continue implementing SNaP and this led them to adapt SNaP to cut down the session length. Cases of low leadership commitment were also reflected in leaders' limited knowledge about what navigators/counselors were doing during counseling sessions, which made it hard for them to know if SNaP was still being implemented and the quality of implementation.

In contrast, direction and mandates from leaders were viewed as essential for SNaP sustainment. Leaders supported SNaP sustainment by directing the navigators/counselors to continue implementing SNaP, reminding them to deliver SNaP during monthly meetings, and supervising them to make sure that SNaP was being done well. As one navigator/counselor described:

Whether it is maintained or not, it's up to the leaders, we're just the implementers ... it requires the leadership to pay attention and direct us so we can do that work. If we want to implement it without leadership's direction on maintaining the intervention, its effectiveness will not be high.

Factors that could encourage leaders to provide sustainment support or direction included leaders finding the intervention to be valuable, leaders being included in the early SNaP trainings and engagement efforts, and navigators/counselors reporting to leadership about their desire to continue implementing SNaP.

Processes

Training Continuity, Technical Support, and Knowledge Sharing. Two process-related barriers to SNaP sustainment noted by SNaP navigators/counselors were training continuity and technical support. Navigators/counselors reported concerns that once they left the clinic or retired, new healthcare workers would not be trained in SNaP or know about it, which would mean that the clinic would go back to the MoH guidelines.

As one navigator/counselor noted, without continual support, projects often get “forgotten.” This situation had already happened at one clinic where the main SNaP navigator/counselor had left, and the remaining counselors had little SNaP knowledge and were only providing it at a minimal level, which made it highly unlikely that new providers would be trained in SNaP. Other navigators/counselors noted that SNaP was harder to implement without technical support from the research team to overcome challenges. However, a few participants shared that a process-related facilitator would be having opportunities to share knowledge about SNaP implementation across clinics.

Characteristics of Interventionists

Enthusiasm and Belief in the Intervention. Provider enthusiasm for and buy-in to SNaP were important facilitators of SNaP sustainment. This included navigators/counselors being excited about SNaP and motivated to use it, which stemmed from providers’ belief or experience that SNaP provided positive impacts for their work or patients. Even in a few clinics where clinic directors did not give direction around SNaP sustainment, navigators/counselors reported that if they saw that SNaP was helpful, they would still apply it, and conversely:

Even when the head of the department made a request or mentioned during a meeting that the SNaP needed to be integrated into the routine work but if the counselors don’t like that program and skip some steps, then the SNaP would not be successful.

This quote also speaks to navigators/counselors’ perceptions that adapting SNaP to skip steps would diminish SNaP’s effectiveness.

For some navigators/counselors, this enthusiasm for delivering SNaP came from their dedication to their job and the mission of HIV treatment. As one navigator/counselor described:

If we can reduce one person, that means we will be able to put one person on ARV treatment, which is good for society and good for his family, minimize those infection problems, because anyone can get infected, maybe they will be my children in the future and then me too. So, the more you can reduce the source of infection, the better. So, no matter the circumstances, I will participate in this content.

Characteristics of the Intervention

Under the domain “characteristics of the intervention,” facilitators to SNaP sustainment included the intervention’s relative simplicity, fit with the clinic activities and mission, and not needing additional resources (e.g., technologies) to implement it. SNaP navigators/counselors described how simple interventions that are closer to current practices are easier to sustain as they are more

likely to become a habit for the implementors. As one navigator/counselor stated:

For example, SNaP is simply similar to the whole process we are doing. It just provides more in-depth instructions, and then the steps are relatively methodical. So ... so the content and all of that are similar, even when ... when the project ends ... if it’s still maintained, it also depends on ... whether it’s easy or not.

In terms of fit with current clinic activities, multiple navigators/counselors noted how they kept delivering SNaP, particularly the counseling skills because it had become a habit. To encourage sustainment, they noted that: “People should carry out the activity [SNaP] and remind one another so everyone, including the health staff and the patients, would get used to it.”

Finally, SNaP’s fit with the clinic’s mission was a third facilitator to SNaP sustainment. This fit could have either been with the clinic’s general mission of HIV prevention and treatment or the clinic’s role in achieving national targets, like “ending AIDS by 2023.” As one navigator/counselor noted:

Our HIV program secretary also paid a lot of attention to the people who inject drugs, then the people who dropped out of treatment. Those are the two subjects that our HIV prevention program gives priority to for inclusion in ARV treatment. The SNaP project is also aimed at these target subjects, so we very much agree and like this SNaP project.

Additionally, clinics in regions with higher HIV rates among PWID felt this mission fit particularly strongly, which was a significant factor in their continued implementation of SNaP.

Characteristics of the Population

Finally, a commonly mentioned barrier to SNaP sustainment was low numbers of PWID and challenges with getting PWID into care. Several clinics had not had any PWID patients come to their clinic since the study ended (and primarily served MSM). As a result, one navigator/counselor commented that they had forgotten the counseling content because they had not had a chance to practice it. Challenges with getting PWID into care, a lack of funding for PWID travel and outreach, and a lack of staff (described above) were also commonly mentioned causes of low numbers of PWID clients. Participants reported how hard it was to get PWID to come into the clinic for HIV testing (which is a precursor to SNaP), noting that without incentives, PWID infrequently come into care on their own.

This challenge resulted from many systemic barriers to care that this population experienced, particularly individuals from remote, mountainous, rural, and poorer districts. Participants noted that in the mountainous regions

because the population is hard both for community and peer healthcare workers to reach, they had typically received less education about HIV but have higher HIV rates. Navigators/counselors also described how it was hard for PWID to travel to clinics for care due to less access to and money for transportation. An additional barrier that navigators/counselors described to getting individuals into MOUD and providing risk-aligned counseling was related to the criminal justice system. As one navigator/counselor shared:

There are reasons why people are afraid that their identity will be revealed, and the police will arrest them... When they are tested, they declare that they have a homosexual relationship. They do that to get around the police.

Discussion

When applying strict definitions of sustainment that focus on the maintenance of interventions' core components, we concluded that only 1/12 clinics had fully sustained SNaP with their current patients. While this definition of sustainment is straightforward, it may be less realistic when applied across clinics in real-world settings. In contrast, when using looser definitions that center adaptations and maintained intervention benefits, we could conclude that a modified SNaP intervention was sustained in most clinics. While looser definitions account for adaptations that are likely inevitable in response to changing circumstances, balancing fidelity with adaptations is a challenge that is particularly salient for behavioral interventions, like SNaP, that are designed to be flexible (Shelton et al., 2018). Additionally, a limitation of our analysis is that providers' perceptions of SNaP's effectiveness might not have equated to actual patient outcomes, which made it hard to determine which adaptations were necessary for SNaP sustainment versus eroding effectiveness. This research underscores the need for inclusion of effectiveness outcomes within sustainment research and intervention developers on implementation teams to clearly define adaptations that are fidelity inconsistent versus intervention optimizing (Shelton et al., 2018).

We also found that because SNaP had similarities to MoH guidelines, it was not always clear which protocol clinics were following, which made reports of sustainment more subjective than anticipated. Additionally, since some providers had not had a PWID patient since the trial ended, they had trouble remembering SNaP or could only share if they would use SNaP with new PWID patients. Thus, these responses could have been impacted by social desirability and/or recall bias. We mitigated these challenges by training the interviewers to remind participants about SNaP's core components and that there was no expectation from the research team that they sustained SNaP. While interviews can provide good contextual information on

factors affecting sustainment, future research should consider using clinic observations and other low-cost and interference methods, like medical chart review, to more objectively assess this outcome (Shelton et al., 2018).

We found that adaptations were common across the clinics. One of the major barriers to SNaP sustainment was lack of time, and staff shared that it would have been challenging to continue delivering the longer SNaP sessions and additional systems navigation session because this was infeasible due to their large number of patients and because they often did not see a necessity for them. This leads us to conclude that adaptations were necessary for SNaP sustainment. While sustainment studies have identified the importance of adaptations, far fewer have discussed types of adaptations made or reasons for adaptations, which is a gap this research helps to fill (Wiltsey Stirman et al., 2012). Like the Dynamic Sustainability Framework, our research also supports the importance of adapting interventions over time in response to changing needs and context (Chambers et al., 2013).

In addition to assessing adaptation as a sustainment determinant, informed by the ISF, we identified several other sustainment barriers and facilitators. The most important barriers included lack of funding for PWID outreach, time, staff, training continuity, and systemic challenges with reaching PWID for HIV testing and SNaP sessions. Participants described how many PWID experienced structural barriers to accessing services, and that this group also tended to have higher rates of HIV. These barriers were compounded by declines in HIV funding, which reduced outreach activities that were facilitating vulnerable PWID getting into care. Several (i.e., lack of funding, time, staff) are consistent with those identified by other studies. However, the ISF, and its applications, did not focus on how systemic barriers to population engagement with services impact intervention sustainment and lead to intervention adaptations, which are ways this study extends the framework (Shelton et al., 2018; Zurynski et al., 2023).

Additionally, these barriers underscore the need for interventions, beyond SNaP, that address this population's structural barriers to care if Vietnam is to reach UNAIDS' 95-95-95 goals by 2030 (UNAIDS, 2016). Additional funding and/or staff would help increase healthcare worker enthusiasm and time for delivering SNaP, which could improve SNaP fidelity. This research also builds support for constructs of staffing/turnover and training as part of the ISF, given that they lacked evidence within a global context in the original framework, as well as "working within existing resources," which is a new construct for inclusion in the ISF (Shelton et al., 2018; Zurynski et al., 2023) (see Supplemental File 1 for comparison between ISF and newly identified constructs).

While research has identified the importance of leadership in maintaining sustainment (Shelton et al., 2018), we

found that individual navigators/counselors were sometimes more important than leaders in determining sustainment. This finding is consistent with the idea of implementation citizenship, that effective implementation requires employees to engage in behaviors that go “above and beyond” to support implementation (Ehrhart et al., 2015). Additionally, we found that clinic directors not providing direction around SNaP maintenance led to inconsistent sustainment across navigators/counselors, which is a barrier not previously identified in the ISF (Shelton et al., 2018; Zurynski et al., 2023). Government mandates around SNaP delivery would likely be the single greatest facilitator of SNaP. In the absence of this intensive strategy, this research underscores the need for clinic director engagement during the sustainment phase, as well as the use of navigator/counselor sustainment champions as feasible sustainment strategies.

This research has implications for researchers and practitioners around movement from an intervention’s implementation to sustainment phase. For example, it suggests that sustainment may be facilitated by a detailed plan for intervention knowledge transfer, continued training, processes to show providers the health impact of the EBI, and directions from clinic directors around EBI sustainment. Each of these strategies can mitigate ambiguity around long-term intervention applications. Future research should test these strategies to determine which are most appropriate, feasible, and effective.

Conclusion

In this study, we identified the role of adaptations for sustainment of components of SNaP and described mechanisms by which some of the ISF constructs act to influence sustainment. Additionally, we demonstrated the applicability of several ISF constructs within global settings and extended the framework. These findings also highlight promising sustainment strategies that could inform trials to improve longevity of effective HIV interventions for populations that continue to be disproportionately impacted by this epidemic.

Consent to Participate

All participants provided written informed consent before participating in the study interviews.

Consent for Publication

Not applicable.

Data Availability

Fully de-identified transcripts can be made available on request.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr.

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Ethical Approval


The study was approved by the University of North Carolina at Chapel Hill, Hanoi Medical University, and Viet Nam Ministry of Health Institutional Review Boards.

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Supplemental Material

Supplemental material for this article is available online.

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