Agreements and disagreements between professionals and users about the experience of a telehealth service for HIV pre-exposure prophylaxis (telePrEP): a qualitative study

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Table of Contents

Original Manuscript..... 4

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Abstract

Background: Men who have sex with men face high HIV prevalence globally. In Brazil, the prevalence among MSM is over 15%. Strategies such as pre-exposure prophylaxis (PrEP) are crucial to reduce HIV transmission. However, increasing PrEP coverage and adherence is challenging due to stigma, changes in risk perception, and difficulty in maintaining regular clinical follow-up.

Objective: We analyzed the perceptions and experiences of users and healthcare professionals about PrEP clinical follow-up via asynchronous remote consultations (telePrEP) in five PrEP services in three Brazilian regions.

Methods: We conducted 19 interviews with users and six interviews with healthcare professionals. The interviews addressed motivations and experiences with in-person and remote PrEP and were thematically analyzed using the QSR Nvivo® software.

Results: In summary, users, primarily cisgender men, positively evaluated telePrEP and highlighted practicality, autonomy, and reduced stigma as benefits of telePrEP. They reported less embarrassment when sharing personal information remotely and the convenience of avoiding frequent trips to healthcare facilities. Healthcare professionals, on the other hand, expressed concerns about losing connection with patients and potentially reducing the quality of care due to the lack of face-to-face interactions.

Conclusions: The successful implementation of telehealth services for PrEP should consider these different perceptions to adequately meet both groups' needs. Additional studies are needed to explore implementation in other contexts and improve healthcare professionals' training to deal with the specificities of PrEP care.

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Original Manuscript

Original Paper

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Keywords: Pre-Exposure Prophylaxis; HIV; Telemedicine; Men who have sex with men; Health Personnel.

Introduction

Men who have sex with men (MSM) face considerable disparities in HIV prevalence worldwide compared to the general population [1,2]. In Brazil, studies indicate an overall prevalence of 0.6%, while among MSM, the figure is over 15% [3,4]. To address these disproportionate rates, biomedical prevention strategies, such as post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP), have proven to be essential for interrupting the chain of HIV transmission and are crucial resources for achieving the desired end of the epidemic [5–8]. However, for these approaches to be effective in reducing HIV incidence among the most affected groups, such as MSM, and especially in the case of PrEP, its coverage needs to be increased. For example, mathematical models estimate that 50% of MSM at substantial risk need to be using PrEP for it to have a significant impact on the hypothetical end of the HIV epidemic [9].

In addition to the increase in the number of users, adequate usage of PrEP and maintenance of adherence according to recommendations are challenges to be overcome in the context of combined HIV prevention. Inadequate use and discontinuation of PrEP are complex phenomena that compromise its effectiveness, both as an individual and collective HIV prevention strategy. Numerous factors are related to discontinuation of PrEP use, such as substance use [10], low or changed perception of risk [10–13], change in relationship status and sexual partners' understanding of PrEP [10,13–15], side effects of PrEP [11,13,14], drug intake and fatigue [12], stigma due to the assumption that PrEP users are HIV positive and/or have sex with multiple partners [16,17], the need to keep used confidential [18], among others.

Besides these factors, studies indicate that discontinuing PrEP use is strongly associated with difficulties reconciling periodic clinical monitoring with the responsibilities and obligations of daily life. Furthermore, the social stigma related to attending specialized HIV services continues to be a significant impediment for many individuals. Continuous use of PrEP requires periodic clinical and laboratory monitoring, and evidence indicates that intense work routines, frequent travel, and other personal priorities contribute to the discontinuation of prophylaxis use [19,20]. Also, regarding monitoring care for PrEP renewal, the perception that quarterly monitoring is tiring and time-consuming, and, in the case of those whose sexual life is partially or fully confidential, going to and staying for a long time in specialized health services may represent a threat of exposure to sexual behaviors that one wants to hide, which is why they are pointed out as barriers to maintaining PrEP use as well [21,22].

To address the difficulties of reconciling quarterly in-person follow-up with work and study routines, as well as the stigma associated with visiting HIV prevention services and other barriers that often result in discontinuation of PrEP use, digital health interventions are recommended [23]. Providing follow-up through telemedicine technologies has been identified as an effective alternative to mitigate barriers to accessing PrEP dispensing services and, consequently, ensuring the continuity of prevention. Telemedicine can solve issues related to geographical difficulties, restricted opening hours of health services, and stigmas associated with visiting specialized HIV/AIDS services, as

observed in the care of people living with HIV [24]. In general terms, *telemedicine* is defined as the provision and provision of partial or comprehensive health services mediated by telecommunication, including telephone and/or internet contacts [25].

In HIV prevention, the discussion about the use of telemedicine across the PrEP care continuum predates the COVID-19 epidemic [26]. However, with the outbreak of the pandemic caused by the coronavirus and the imposition of policies to control and restrict movement, there has been an acceleration in the introduction of telemedicine in sexual health care [27,28]. Specifically, in the case of PrEP, adopting telemedicine resources, such as virtual consultations and support for self-testing, has shown positive results in promoting access and adherence to PrEP [23]. In Brazil, proposals to use telemedicine to involve individuals in PrEP care are rare. However, prompted by the COVID-19 pandemic, some PrEP demonstration research projects have adapted their protocols to continue recruiting and providing care through remote monitoring technologies due to restrictions on in-person contact [29,30]. Although the COVID-19 emergency has enabled the inclusion of telemedicine in the context of PrEP, issues related to its implementation, effectiveness, and how technology adoption is perceived by users, health professionals, and managers remain little studied. In this context, this study aims to explore and analyze the perceptions and experiences of users and health providers concerning a modality of clinical monitoring of PrEP with asynchronous remote assessments (telePrEP) of five PrEP dispensing services in three Brazilian regions.

Methods

We collected the data analyzed in this study in the third phase of the Combina! Study (CS!) [31], a stage that used mixed methods to investigate the impact of adopting clinical follow-up of PrEP through remote and asynchronous consultation on the permanence and use of PrEP, as well as the potential effect on the diagnosis of STIs and HIV. In this modality, we adopted a telePrEP protocol in which we carried out asynchronous clinical assessments quarterly through an online platform. Users and health professionals could access it through different devices such as cell phones, tablets, or computers. The telePrEP protocol included an annual in-person appointment. At the beginning of this third phase, carried out between July 2019 and December 2020, all participants in PrEP follow-up in the CS! for more than six months and who had regular access to the internet were invited to continue clinical follow-up via remote modality [31]. In the qualitative component, users and professionals working in monitoring users of all CS! sites, such as health professionals and those working in reception, reception, and administration of data from the research field, were also invited to participate.

For this article, we analyzed qualitative empirical data collected from users identified as cisgender men who were or had experience with PrEP follow-up in remote and asynchronous mode, as well as from health professionals, primarily infectious disease specialists, responsible for the clinical follow-up of users from all CS! sites. Nineteen interviews were conducted with users from all study sites, and six interviews with health professionals prescribed to four of the five services participating in the study. This number of interviewees was determined by the theoretical saturation criterion [32,33]; among the prescribing professionals, all those who agreed to participate in the research were included.

The user interview script included sociodemographic questions, motivations for using PrEP, and experiences with in-person clinical follow-up and telePrEP. In addition to sociodemographic questions, the interview script for professionals investigated their professional trajectory, work with PrEP, including their routine with users, and experiences with in-person clinical follow-up and telePrEP. The scripts were tested in a pilot phase, and in the user group, we sought to ensure diversity across age groups, race/color, health services of study participants, and time of PrEP use.

The interviews were conducted by trained researchers with prior experience in qualitative research

and HIV prevention. All interviews, except those with healthcare professionals prescribing PrEP from the São Paulo service, were conducted virtually between May and June 2021 due to restrictions imposed by the COVID-19 pandemic. All in-depth interviews were conducted via video call platform and recorded after participants gave explicit consent and signed an informed consent form. All participants were offered a stipend of R$40 (or just over seven dollars at the exchange rate on July 23, 2024) to cover any expenses related to participation in the qualitative component of the study. We assigned codenames to participants to prevent their identification. The material was then transcribed and reviewed, and the interviews were inductively categorized into thematic axes using the QSR Nvivo® software, version 12.

The data were analyzed and interpreted using thematic analysis [34], focusing on the content and contextual meaning of the narratives of users and health professionals. We followed the following steps in the inductive analytical-interpretative trajectory of the empirical material: (a) comprehensive reading, aiming at the impregnation, overview, and apprehension of the particularities of the transcribed interviews; (b) identification and thematic cut that emerges from the narratives; (c) identification of patterns of explicit and implicit meanings in the statements, carried out by three researchers, one responsible for conducting the interviews and two others as verification specialists; (d) search for broader (sociocultural) meanings underlying the statements of the research participants; (e) dialogue between the problematized ideas and the comparison with the literature; and (f) work of dialogic elaboration among the researchers of an interpretative synthesis, based on the objectives of the study, the results and the discussions produced from the literature on the theme/ object.

Results

The nineteen interviewees who were being followed up via telePrEP identified themselves as cisgender homosexual men, had a high level of education (complete or incomplete higher education), and were between 23 and 58 years old. Twelve identified themselves as white and seven as black (black and mixed race combined), a characterization consistent with the PrEP users' profile in Brazil and the cities where the study was conducted [35,36]. Of these interviewees, three had preferred to return to in-person PrEP follow-up at some point during their participation in the study, and one was interrupting PrEP use. Among the six professionals prescribing PrEP, four women and two men partook in the study, all cisgender between 35 and 61 years old. Most of the professionals identified themselves as white (4/6), heterosexual (4/6), and most declared having ties to Christian-based religions, and all had higher education. Detailed sociodemographic information of the participants is available in the tables below.

Table 1. Characterization of participants using telePrEP.

Fictitious name	Age (complete years)	Skin color	Gender identity and sexual orientation	Education	Religion/ Spirituality	Type of follow-up at the time of the interview	Research site
Adônis	37	White	Cisgender homosexual man	Completed Higher Education	Christian	TelePrEP	Porto Alegre/RS
Agamenon	33	White			Christian	TelePrEP	Ribeirão Preto/SP
Amon	27	White			"Practices spirituality"	Tried TelePrEP but returned to in-person	Ribeirão Preto/SP
Dionísio	29	White			Wicca	TelePrEP	Fortaleza/CE
Édipo	23	Black			Umbanda follower	TelePrEP	Curitiba/PR
Érico	30	White			Atheist/ Agnostic	TelePrEP	São Paulo/SP
Eros	31	Black			Atheist/ Agnostic	TelePrEP	Curitiba/PR
Ícaro	58	White			Umbanda follower	TelePrEP	Curitiba/PR
Kael	25	Mixed-race			Atheist/ Agnostic	TelePrEP	Curitiba/PR
Lázaro	30	Black			Christian	TelePrEP	Fortaleza/CE
Loki	40	White			Lutheran	Stopped using PrEP	São Paulo/SP
Merlin	35	White			Polytheist	TelePrEP	São Paulo/SP
Odin	24	Mixed-race			Christian	TelePrEP	Porto Alegre/RS
Ran	35	White			Mystic	Tried TelePrEP but returned to in-person	São Paulo/SP
Thor	33	White			Christian	TelePrEP	Curitiba/PR
Tyr	39	Mixed-race			Spiritist	TelePrEP	São Paulo/SP
Uller	28	White			Spiritist	TelePrEP	São Paulo/SP
Aud	44	White		Incomplete Higher Education	Spiritist/ Buddhist	Tried TelePrEP but returned to in-person	Porto Alegre/RS
Lino	39	Mixed-race			Rosicrucian Order	TelePrEP	Ribeirão Preto/SP

Table 2. Characterization of telePrEP healthcare professionals participating in the study.

Fictitious name	Age (complete years)	Skin color	Gender identity and sexual orientation	Education	Religion/Spirituality	Research site
Asclépio	61	White	Cisgender homosexual man	Completed Higher Education	No information	São Paulo/SP
Galeno	49	Mixed-race			Spiritist	São Paulo/SP
Anahit	38	White	Cisgender heterosexual woman		Lutheran	Curitiba/PR
Cardea	41	Mixed-race			Christian	Fortaleza/CE
Higéia	51	White			Spiritist	São Paulo/SP
Panacéia	35	White			Lutheran	Porto Alegre/RS

Caption: PrEP: HIV pre-exposure prophylaxis; TelePrEP: PrEP Telehealth; Cis: Cisgender; SP: São Paulo; CE: Ceará; PR: Paraná; RS: Rio Grande do Sul.

Five of the six professionals interviewed were prescribing physicians, and one was a nurse who managed the health service. In the description of their academic and professional careers, despite specializing in infectious diseases, in the case of physicians, all professionals reported that working in HIV prevention was not an option considered or planned at the beginning of their careers but rather the result of coincidences, such as a coordinator position opening or a new sexual health clinic that needed prescribers.

Perspectives and motivations for choosing telePrEP among users

According to the testimonies, the main reasons for migrating from traditional PrEP to telePrEP were the gains in terms of convenience, practicality, and protagonism in sexual health care and HIV prevention since telePrEP made it possible to reconcile the demands of PrEP with the needs of personal and professional life. Kael highlights that telePrEP reduces the stress caused by the stigma related to HIV services, in addition to gains in practicality and autonomy in the care process.

> [...] I took a step further in my prevention. Moreover, man, if it becomes more accessible and more practical, wow, even better for me. But I think about other people too, because I'm not ashamed to go there, but I know that many people are (Kael, 25 years old, mixed race, participant).

For other interviewees, telePrEP reduced travel costs to the service and minimized problems commonly faced at each consultation at the service, as explained by Eros:

> [...] it was tough, so much so that there were times when I didn't take [the medication], and I stopped taking it because it was really hard to do all this stuff. After all, you have to wait for the exam, which, let's say, is 30 minutes, but it went on for almost an hour. Then, you had to hand the exam over to the doctor and wait for the doctor's time, which went on for about an hour and a half. Then, there was the line to get the medication, which was always very crowded. Even when it was empty, sometimes it took a long time (Eros, 31 years old, black, participant).

Most users positively evaluated the in-person care service professionals (such as doctors, receptionists, and counselors) provided. However, there were also significant reports of embarrassment due to the content of the questions asked by the professional when filling out the PrEP prescription forms and medical records. In addition, some users felt uncomfortable answering protocol questions, which, in the opinion of at least one participant, the professional already knew the answer to. was particularly noted in the questions about sexual behaviors and practices during medical appointments.

> Look, the only thing that changes [in telePrEP] is about embarrassment, perhaps. I'm

> pretty calm, but whether I like it or not, there are very personal questions that I think I felt more embarrassed about [in face-to-face clinical consultations] when she asked me because she knew the answer, and I had to answer, you know? (Lázaro, 30 years old, black, participant).

Along the same lines, another perceived advantage of telePrEP is the attenuation of the anticipated stigma associated with HIV, as the interviewee would no longer be seen by third parties (i.e., sexual partners, friends, or family) attending health services that serve people living with HIV/AIDS or would no longer have to present a medical certificate from these services to justify absence from work, for example. Adônis's statement is illustrative: "I've already gotten there, and there were people I had already seen on the street or something like that. Then the person looks at you, with eyes... Then you always wonder: is he using PrEP, too? Or is he here because he has HIV?" In another statement, Thor explains:

> Even today, I feel a little embarrassed; it could be just my imagination because it's the same place where people get [collect] medication for HIV (Thor, 33 years old, white, participant).

It is essential to highlight that the pick up of new PrEP vials during the telePrEP protocol continued in person. In other words, the user had to go to the health service, wait for the pharmacist to assist them, and then receive the new pills. However, the statements analyzed indicate that the time spent in and traveling to health services was considerably reduced compared to entirely in-person clinical follow-up.

Some interviewees also considered that there was no need to carry out in-person clinical consultations for the use of PrEP due to a perception of low risk of adverse effects associated with the medication and the perception that routine laboratory tests alone would be sufficient to assess physical health. Thus, these tests, in themselves, generated a higher perception of safety.

> Of course, I know that any medication has side effects. But since we do the exams every three months, they take care of everything. I am also sure that even if it were from a distance, that way, if the doctor looked at your exams there, he would call you if necessary, and if it wasn't required, it's one less person on the schedule and another person who needs it, who can be seen, you know? (Aud, 44 years old, white, participant).

Furthermore, for the interviewees, the PrEP care process could be simplified, quicker, and more practical, to be less costly for them, for the professionals, and for the health service, with the perception that this would not compromise the quality of care or the safety in the use of prophylaxis, in addition to the perception of some users that the incorporation of telePrEP would enable an increase in the number of PrEP appointments. They also emphasize that the absence of in-person consultations would not harm their health or access to the service, as they could seek care when needed. Kael, Uller, and Érico highlight these points.

> I think it took away the idea that prevention is complicated and complex. I guess it somewhat normalized prevention (Kael, 25 years old, mixed race, participant).
>
> I think this system is an efficient, fast way. Like, I save these people's time, I save mine, you know? [...] Obviously, maybe one day a doubt will come up, but I also know that if I want to go and see a doctor, I'll be able to, you know? For me, it's great; it works well like this (Uller, 28 years old, white, participant).
>
> I had syphilis a third time while I was already on telePrEP, and I contacted [professional], and she managed to schedule an appointment for me, and I went there. So, for me, this was just proof of what I already imagined: if I need an appointment at any time, I'll be able to get it. I won't be left, I won't be left without one, in that sense (Érico, 30 years old, white, participant).

From the challenges of PrEP care to the contradictions between ideal and offered care

Many professionals interviewed highlighted that monitoring users using PrEP presents significant challenges for health professionals who work in sexual health care and care of the LGBTQIA+ population. They point out that their academic training does not adequately prepare them to understand and care for people who do not correspond to hegemonic social standards of identity and sexual orientation. These professionals recognize that PrEP monitoring, whether in person or remotely, requires an understanding and management of the diversity of gender and sexual identities, as well as sexual practices, to meet the needs and demands of these groups adequately. In the case of PrEP users, sexual practices and behaviors are even more highlighted in the clinical encounter than when caring for HIV-positive patients, which generates discomfort and a feeling of unpreparedness in some professionals.

> So, I think that PrEP brought all of these [socially stigmatized topics] to the table, let's say, and these are things that we were not prepared to do. We were unprepared to work with these issues at any point in our training, right? It's a parallel universe where no subject will teach this, where there is no place to study it (Galeno, 49 years old, mixed race, professional).
>
> In relation, like, in my residency training [in infectious diseases], we didn't have much of this [to socially stigmatized topics, such as sexuality, gender issues, etc.] because the residency itself was more about the ward with few outpatient clinics, and talking about sexuality was more about PrEP, you know? (Cardea, 41 years old, mixed race, professional).

This perception of "unpreparedness" is reflected in two other tensions. The first is how the person on PrEP is perceived in the care relationship. For Galeano, this tension occurs because people on PrEP do not fit into the classic representation of a "patient," whose professional intervention is directed by management to cure or treat an illness or disease, for example, which is not the case with PrEP care, as highlighted in Galeano's statement: "First, they were not patients, they were users" – who come to the office with demands on sexual health and interest in new HIV prevention technologies. This problematization about the training and role of the infectious disease specialist was also brought up by the coordinator of one of the PrEP care services, who faces these dilemmas in managing the service. According to the coordinator, she is frequently confronted by infectious disease professionals in the service who refuse to act in prescribing PrEP because they understand that the training and duties of the infectious disease specialist, in the context of that service, are related to HIV treatment, and that prescribing PrEP is not the professional's responsibility.

> ‘I am an infectious disease specialist. I treat HIV. I treat people who have the virus. I do not treat people who do not have the virus. So I do not provide PrEP care’ [referring to the everyday discourse of professionals who do not want to prescribe PrEP]. [...] So this discussion ends up generating, sometimes, some conflicts, and I have a minimal number of medical professionals who prescribe [PrEP] here [in the health service] (Anahit, 38 years old, white, professional).

Still, to exemplify the challenge and complexity of caring for a PrEP user, in one of the interview excerpts, Galeano reports on the need to establish and create bonds with users as a fundamental step in the PrEP care process, as illustrated in the following report.

> I know, more or less, a little about their life context, what they do, their profession, how they deal with this issue of sexuality, from the point of view of whether they are more focused on sex or focused on relationships or whether they are always looking for a relationship with intermittent, intercurrent sex [...] (Galeno, 49 years old, mixed race, professional).

It is the appreciation of this bond for the care process that motivated, among professionals, the main questions about telePrEP, despite an a priori positive evaluation of the experience of asynchronous

telehealth care, including the recognition of the potential of this type of follow-up to promote gains in convenience, practicality, and agility for users, which would lead to an improvement in adherence and retention of prophylaxis. This duality between the appreciation of the bond, which was established in the face-to-face relationship, and the potential gains of telePrEP makes professionals limit the benefits of telePrEP care to a portion of the people on PrEP.

> Some people won't adapt to remote care, right? And other people will like it because it's more practical, easier or faster, right? This will make it easier to adhere to because you have to call, make an appointment, go to the appointment, and wait. It's a process for a young person who works and lives full of commitment. Sometimes that makes it difficult, right? (Panaceia, 35 years old, white, professional)

Thus, according to reports from most professionals, choosing telePrEP is seen as a renunciation of the bond provided by face-to-face care or even prioritization of other benefits, such as convenience and practicality, to reconcile the need for clinical follow-up and PrEP use.

> Well, some patients didn't want to go to telePrEP because they said they didn't want to lose contact with me. "Doctor, I don't want to stop seeing you." Then I said: "Oh, my God, I want to see you too." Then there are people who: "No. It's better for me [to switch to telePrEP]." Then, sometimes, we forget the patient's face (Cardea, 41 years old, mixed race, professional).

The fear of losing the connection is accompanied by the concern, on the part of health professionals, that telePrEP will compromise the quality of the care provided. This feeling is reinforced by the perception that telehealth care is something mechanical, provided with less rigor, and that the lack of face-to-face interaction makes it difficult for professionals to identify health problems or even prevent people on PrEP from reporting their concerns. It could lead, for example, to underdiagnosis of STIs.

> [...] it becomes a very mechanical thing that leads to loss of quality. You lose quality. I do not doubt that the quality of care is lost (Galeno, 49 years old, mixed race, professional).
>
> [...] need more rigorous monitoring. Because I think that something can get lost in this environment, you know? The patient may have some, I don't know, some symptoms, and there's no way to [diagnose it], right? It gives you that feeling, and there's no way to express it remotely (Radius, 27 years old, white, professional).

Some people on PrEP, specifically those who chose to return to face-to-face follow-up, also perceived the connection and resolution of health problems in face-to-face consultations as positive. These narratives reinforce the satisfaction with the connection established with professionals in face-to-face consultations and how useful they were for resolving different health demands related or not to PrEP.

> So by going there in person, I can ask questions about whether this medication interferes with PrEP or not, I can have a conversation with the doctor about other issues related to PrEP, and I can also find out about my sexual orientation (Amon, 27 years old, white, participant).

Discussion

The match between the needs and facilities of telePrEP for users and the pessimism of professionals regarding remote monitoring

Overall, our results indicate significant differences in how healthcare professionals and PrEP users perceived PrEP follow-up based on asynchronous remote care. TelePrEP proved more advantageous for users than in-person follow-up, being perceived as more practical, convenient, and offering greater autonomy in the care process. Additionally, users also highlighted that embarrassment caused by the need to verbally share details of their sexual behaviors and practices with the healthcare professional in in-person consultations, as well as exposure to the stigma of attending specialized

HIV services, decreased with telePrEP, making the remote PrEP clinical follow-up modality perceived as more enjoyable for the continuity of HIV prevention with the use of PrEP.

While the users' reports regarding telePrEP were highlighted by the emphasis on the perceived advantages of the in-person modality, the reports of health professionals were marked by the perception that PrEP care via telehealth is affected by the loss or reduction of contact and bond between the health professional and the prophylaxis user. For many professionals, face-to-face consultations allow the creation and strengthening of the bond with the users, which would be necessary to identify demands related to comprehensive care and diagnose possible STIs. Contrary to the fear reported by health professionals, users were more confident that remote care did not harm the bond between the service and health professionals. The safety in maintaining PrEP care and assistance, the periodic performance of laboratory tests, as well as the availability of the service to meet their health demands, combined with the perception that they could access the service in person when necessary, were mentioned by users as points that guarantee trust in the new model of clinical follow-up of PrEP.

Thus, the experience with telePrEP was permeated by the combination of aspects that limit the expansion of the effective use of prophylaxis, such as insufficiencies in medical training to act in the prevention and care of sexual and gender minorities [37–39], conflicts in understanding the possible degree of autonomy of people who use PrEP [40] and requirements of PrEP prescription protocols that can hinder regular clinical follow-up, as already discussed in other studies [41].

However, in addition to increased autonomy, people on PrEP perceived the lack of obligation to go to the service as an opportunity to eliminate the constraints arising from the hegemonic expectation of sexual practices positioned in a sexual hierarchy, as discussed by Rubin [42], and to avoid an expectation of stigma related to HIV [43]. We believe that these two reasons are not trivial. They have constituted essential barriers to the use of preventive methods based on the use of antiretrovirals and have even imposed suffering on their users [43–45]. So much so that strategies to reduce the negative impact of these events, such as self-administered questionnaires and different teleconsultation systems, have shown benefits in access and the user-service-professional relationship [46,47].

For healthcare professionals, in turn, the benefits of telePrEP emerge mainly from a theoretical narrative rather than from a practical perspective. That is because, although there is no ideal and perfect care for professionals in face-to-face consultations, there is a tendency to believe that this modality is more comprehensive and complete than asynchronous telehealth assessments. Furthermore, for these professionals, the choice of remote follow-up, motivated by convenience and practicality, obliterates recognizing the importance of the bond created in face-to-face relationships – valued more by the professional than by the user – and the endogenous loss of quality of care. This perception occurs despite a shared view with users that face-to-face care and its quality are already eroded for several reasons that directly affect professionals and users, such as the large number of appointments, the accumulation of work, the long waiting times for appointments, and the difficulty – for some and the embarrassment for others – in dealing with sexual and identity diversity. Thus, a possible improvement in the service and supply of PrEP with the incorporation of telePrEP, due to the higher rationalization of demand and care, becomes prohibited by a clinical practice that values face-to-face care learned from the beginning of the training.

Furthermore, there is also an understanding that individuals on PrEP in asynchronous telehealth follow-up may have limitations, or even an inability, to perceive health needs that could potentially impact the path to seeking the service to diagnose and treat health problems. This perception prevailed despite the awareness that the clinical examination in in-person PrEP care is generally performed in the presence of a clinical complaint expressed by the individual or in the presence of changes in laboratory tests. In other words, as already explored in other studies [48,49], a conception prevailed among professionals that virtuality cannot supplant or overcome material reality, so much so that the study [31] carried out in the same services showed that the frequency of STI diagnosis

after two years of implementing telePrEP remained similar to that of in-person care, as well as the rates of HIV and adherence to PrEP were the same. However, the PrEP discontinuation risk was reduced by about a third of those who chose telePrEP.

It is clear that the search for and provision of care, particularly in the context of PrEP, is not just about physical presence or virtual immateriality. Instead, it concerns the bond between the service and the health professional. This bond, as the users themselves have defined, is built on trust and care. This emphasis on trust underscores its pivotal role in healthcare relationships and preventive medicine, making the audience feel the importance of trust in their interactions with PrEP users.

In short, the differences in representations of how to perform PrEP care generated tension between professionals and people using it. Professionals presented a representation that cannot ignore the materiality of the user in the office, a classic act of medical theatricality learned through professional training processes, and people on PrEP, aware of the imponderables that cross them and eager for strategies that mitigate the transits that aim at prevention, constructed a representation that brings them closer to complete autonomy – or self-care –, with management of health needs on demand.

It does not mean that the tension is impossible to overcome or that professionals reject telePrEP. To address this issue, we will need policies that involve training professionals to use this technology, finding connections, educating people on PrEP, and guiding professionals to make safer clinical decisions. In this context, it is worth remembering that a large part of the telePrEP protocol and the interviews analyzed here were conducted during the COVID-19 pandemic in Brazil and that, even so, some prescribing professionals from the services participating in the study were resistant to telehealth.

However, training must be unrestricted to new technologies, as the professionals' narratives suggested when they highlighted challenges and insecurities generated by academic and professional deficiencies, which did not qualify them to work in PrEP fully. It is worth recalling that none of the professionals planned to work in HIV/STI prevention, even those with medical specialization in infectious diseases. According to the statements of most professionals, medical training provided the necessary and focused skills for caring for people in situations of illness to the detriment of healthy people seeking preventive methods, nor did it offer any training for welcoming people from sexual and gender minorities, considered critical populations for HIV prevention.

The lack of programmatic content in undergraduate health courses, as well as institutional environments that support the development of professional skills aimed at caring for people from sexual and gender minorities, has been the subject of investigations in various parts of the world, such as the USA, the United Kingdom, and Brazil [38,39,44]. What the vast majority of these studies reveal is that the absence of these topics in professional training is something widely disseminated in educational institutions around the world, regardless of the level of economic development or institutional prestige, and that leads professionals trained by these institutions to realize their inability to care for these populations in situations of greater vulnerability [38,50,51]. Although the National Curricular Guidelines explicitly state the importance of these themes in medical training to ensure adequate care for people from sexual and gender minorities, studies that investigated the curricular components of Brazilian medical courses also identified the lack or scarcity of themes related to gender, sexuality, sexual diversity, among other related themes, from a positive perspective based on human rights and diversity [37,39,52–54].

Only some users are ready to take advantage of this proposal. Although the participants in this study did not face these problems, as these new forms of telehealth clinical monitoring are expanded to a larger population of PrEP users, challenges may arise, such as access to the internet, modern equipment that allows for more fluid communication, and the possibility of being connected to a network. These challenges should be seriously considered, especially for those with greater vulnerability. In addition, some participants feel uncomfortable carrying out many remote consultations in a row, which suggests the need to maintain a certain degree of hybridity in preventive proposals.

Thus, telemedicine as a proposal for health prevention care presents a series of complexities that require in-depth research to understand its scope and limitations in specific contexts and groups.

Conclusions

Our findings suggest that the PrEP clinical monitoring protocol with asynchronous assessments conducted via a telehealth website is well-evaluated by users and health professionals. This type of clinical monitoring has allowed for increased practicality, convenience, and autonomy in HIV prevention. It also enables individuals to more easily balance the demands of PrEP clinical monitoring with their daily needs. The gain in independence and distance of the user from the clinical office, however, was experienced by some professionals as a risk of loss of quality of care and the affective bond established with the user during traditional in-person care. Understanding the nature of these divergences in perceptions and assessments and how they imply the success of alternative forms of health care consists of essential efforts to ensure that the needs of all parties involved in the care process are adequately met. Nevertheless, it is vital to highlight that it is necessary to carry out new research of this type in contexts other than large Brazilian cities to contextualize different territories and socioeconomic realities to understand the underlying logic in the practices and representations of the implementation of a telePrEP service.

Our study also contributes to further consolidating the evidence that points to the urgent need to rethink the health education curriculum so that health professionals have the necessary tools to provide comprehensive care to the most vulnerable populations, such as sexual and gender minorities. More specifically, our analyses also reveal the absence of these topics even in medical fields, such as infectious diseases, which deal directly with taboo and socially stigmatized issues, such as sexual practices and risk.

There are some limitations to be considered. The analyses presented are regarding users and professionals who chose to carry out clinical monitoring using telePrEP. That is, we did not conduct qualitative interviews with users who decided to continue with in-person monitoring, and consequently, we were unable to discuss the motivations that influenced the refusal of telePrEP by almost half of the invited users (48%; data not yet published) and for some professionals in the service who refused to collaborate in this component of the Combina! Study. Nonetheless, a structured questionnaire was applied after the moment of choosing between telePrEP or in-person PrEP, and the analyses (not yet published) reveal that motivations related to the excellent quality of the service and the possibility of resolving other health needs during medical consultations were frequent among those who chose to continue with in-person monitoring.

Our work has potential and innovations. That is the first and only study conducted in Brazil in which PrEP users were offered the possibility of undergoing clinical monitoring with non-face-to-face consultations even before the COVID-19 pandemic subsided in the country. Moreover, our findings will serve as a starting point for creating and improving telehealth services, not only in HIV prevention but also in other strategic sectors, by explaining motivations, perceptions, and experiences from the perspective of users and the professionals involved.

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Conflicts of Interest

The authors have no competing interests to declare that are relevant to the content of this article.

Ethical Approval

All requirements established by resolution 466/2012 of the National Research Ethics Commission and resolution 510/2016 of the National Health Council were met, and the study was previously approved by the Ethics Committee of the Faculty of Medicine of the University of São Paulo, under opinion number 3,438,329/2019.

Abbreviations

CAPPesq (in Portuguese): Research Project Analysis Ethics Committee
CONEP(in Portuguese): National Research Ethics Committee
CS!: Combina! Study
HIV: Human Immunodeficiency Virus
LGBTQIA+: Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and other identities
MSM: Men who have sex with men
PEP: Post-Exposure Prophylaxis
PrEP: Pre-Exposure Prophylaxis
STI: Sexually Transmitted Infection
USP: University of São Paulo

References

1. Govender RD, Hashim MJ, Khan MA, Mustafa H, Khan G. Global Epidemiology of HIV/AIDS: A Resurgence in North America and Europe: JEGH 2021;11(3):296. doi: 10.2991/jegh.k.210621.001

2. Korenromp EL, Sabin K, Stover J, Brown T, Johnson LF, Martin-Hughes R, Ten Brink D, Teng Y, Stevens O, Silhol R, Arias-Garcia S, Kimani J, Glaubius R, Vickerman P, Mahy M. New HIV Infections Among Key Populations and Their Partners in 2010 and 2022, by World Region: A Multisources Estimation. JAIDS Journal of Acquired Immune Deficiency Syndromes 2024 Jan 1;95(1S):e34–e45. doi: 10.1097/QAI.0000000000003340

3. Guimarães MDC, Kendall C, Magno L, Rocha GM, Knauth DR, Leal AF, Dourado I, Veras MA, Brito AMD, Kerr LRFS. Comparing HIV risk-related behaviors between 2 RDS national samples of MSM in Brazil, 2009 and 2016. Medicine 2018 May;97(1S):S62–S68. doi: 10.1097/MD.0000000000009079

4. Veras MA, Calazans GJ, De Almeida Ribeiro MCS, De Freitas Oliveira CA, Giovanetti MR, Facchini R, França IL, McFarland W, The SampaCentro Study Group. High HIV Prevalence among Men who have Sex with Men in a Time-Location Sampling Survey, São Paulo, Brazil. AIDS Behav 2015 Sep;19(9):1589–1598. doi: 10.1007/s10461-014-0944-3

5. Fauci AS, Redfield RR, Sigounas G, Weahkee MD, Giroir BP. Ending the HIV Epidemic: A Plan

for the United States. JAMA 2019 Mar 5;321(9):844. doi: 10.1001/jama.2019.1343

6. Jenness SM, Johnson JA, Hoover KW, Smith DK, Delaney KP. Modeling an integrated HIV prevention and care continuum to achieve the Ending the HIV Epidemic goals. AIDS 2020 Nov 15;34(14):2103–2113. doi: 10.1097/QAD.0000000000002681

7. Jackson KJ, McCoy SI, White DAE. A Decade of HIV Preexposure Prophylaxis (PrEP): Overcoming Access Barriers in the United States Through Expanded Delivery. Public Health Rep 2023 Nov 30;00333549231208487. doi: 10.1177/00333549231208487

8. Cáceres CF, Koechlin F, Goicochea P, Sow P, O'Reilly KR, Mayer KH, Godfrey-Faussett P. The promises and challenges of pre-exposure prophylaxis as part of the emerging paradigm of combination HIV prevention. Journal of the International AIDS Society 2015 Jul;18(4S3):19949. doi: 10.7448/IAS.18.4.19949

9. Jijón S, Molina J-M, Costagliola D, Supervie V, Breban R. Can HIV epidemics among MSM be eliminated through participation in preexposure prophylaxis rollouts? AIDS 2021 Nov 15;35(14):2347–2354. doi: 10.1097/QAD.0000000000003012

10. Spinelli MA, Laborde N, Kinley P, Whitacre R, Scott HM, Walker N, Liu AY, Gandhi M, Buchbinder SP. Missed opportunities to prevent HIV infections among pre-exposure prophylaxis users: a population-based mixed methods study, San Francisco, United States. J Intern AIDS Soc 2020 Apr;23(4):e25472. doi: 10.1002/jia2.25472

11. Nieto O, Brooks RA, Landrian A, Cabral A, Fehrenbacher AE. PrEP discontinuation among Latino/a and Black MSM and transgender women: A need for PrEP support services. Morgan E, editor. PLoS ONE 2020 Nov 5;15(11):e0241340. doi: 10.1371/journal.pone.0241340

12. Ongolly FK, Dolla A, Ngure K, Irungu EM, Odoyo J, Wamoni E, Peebles K, Mugwanya K, Mugo NR, Bukusi EA, Morton J, Baeten JM, O'Malley G. "I Just Decided to Stop:" Understanding PrEP Discontinuation Among Individuals Initiating PrEP in HIV Care Centers in Kenya. JAIDS Journal of Acquired Immune Deficiency Syndromes 2021 May 1;87(1):e150–e158. doi: 10.1097/QAI.0000000000002625

13. Whitfield THF, John SA, Rendina HJ, Grov C, Parsons JT. Why I Quit Pre-Exposure Prophylaxis (PrEP)? A Mixed-Method Study Exploring Reasons for PrEP Discontinuation and Potential Re-initiation Among Gay and Bisexual Men. AIDS Behav 2018 Nov;22(11):3566–3575. doi: 10.1007/s10461-018-2045-1

14. Pintye J, O'Malley G, Kinuthia J, Abuna F, Escudero JN, Mugambi M, Awuor M, Dollah A, Dettinger JC, Kohler P, John-Stewart G, Beima-Sofie K. Influences on Early Discontinuation and Persistence of Daily Oral PrEP Use Among Kenyan Adolescent Girls and Young Women: A Qualitative Evaluation From a PrEP Implementation Program. JAIDS Journal of Acquired Immune Deficiency Syndromes 2021 Apr 1;86(4):e83–e89. doi: 10.1097/QAI.0000000000002587

15. Quinn KG, Zarwell M, John SA, Christenson E, Walsh JL. Perceptions of PrEP Use Within Primary Relationships Among Young Black Gay, Bisexual, and Other Men Who Have Sex with Men. Arch Sex Behav 2020 Aug;49(6):2117–2128. doi: 10.1007/s10508-020-01683-1

16. O'Rourke S, Hartmann M, Myers L, Lawrence N, Gill K, Morton JF, Celum CL, Bekker L-G,

Van Der Straten A. The PrEP Journey: Understanding How Internal Drivers and External Circumstances Impact The PrEP Trajectory of Adolescent Girls and Young Women in Cape Town, South Africa. AIDS Behav 2021 Jul;25(7):2154–2165. doi: 10.1007/s10461-020-03145-0

17. Pillay D, Stankevitz K, Lanham M, Ridgeway K, Murire M, Briedenhann E, Jenkins S, Subedar H, Hoke T, Mullick S. Factors influencing uptake, continuation, and discontinuation of oral PrEP among clients at sex worker and MSM facilities in South Africa. Galea JT, editor. PLoS ONE 2020 Apr 30;15(4):e0228620. doi: 10.1371/journal.pone.0228620

18. Bjertrup PJ, Mmema N, Dlamini V, Ciglenecki I, Mpala Q, Matse S, Kerschberger B, Wringe A. PrEP reminds me that I am the one to take responsibility of my life: a qualitative study exploring experiences of and attitudes towards pre-exposure prophylaxis use by women in Eswatini. BMC Public Health 2021 Dec;21(1):727. doi: 10.1186/s12889-021-10766-0

19. D'Angelo AB, Lopez-Rios J, Flynn AWP, Holloway IW, Pantalone DW, Grov C. Insurance- and medical provider-related barriers and facilitators to staying on PrEP: results from a qualitative study. Translational Behavioral Medicine. 2020. doi: 10.1093/tbm/ibz191

20. Braz Junior RP, Cesar GA, Amianti C, Bandeira LM, Da Silva ASP, Motta-Castro ARC. Behind Prep Decisions: Understanding User Patterns and Discontinuation Factors in Real-World. AIDS Behav 2024 Jun 2; doi: 10.1007/s10461-024-04383-2

21. Owens C, Moran K, Mongrella M, Moskowitz DA, Mustanski B, Macapagal K. "It's Very Inconvenient for Me": A Mixed-Method Study Assessing Barriers and Facilitators of Adolescent Sexual Minority Males Attending PrEP Follow-Up Appointments. AIDS and Behavior 2021 Jan;26(1):21–34. doi: 10.1007/s10461-021-03313-w

22. Antonini M, Silva IED, Elias HC, Gerin L, Oliveira AC, Reis RK. Barriers to Pre-Exposure Prophylaxis (PrEP) use for HIV: an integrative review. Rev Bras Enferm 2023;76(3):e20210963. doi: 10.1590/0034-7167-2021-0963

23. Kamitani E, Peng Y, Hopkins D, Higa DH, Mullins MM. A Community Guide Systematic Review: Digital HIV Pre-Exposure Prophylaxis Interventions. American Journal of Preventive Medicine 2024 Feb;S0749379724000631. doi: 10.1016/j.amepre.2024.02.009

24. Smith E, Badowski ME. Telemedicine for HIV Care: Current Status and Future Prospects. HIV 2021 Jun;Volume 13:651–656. doi: 10.2147/HIV.S277893

25. Fong B, Fong ACM, Li CK. Telemedicine Technologies: Information Technologies in Medicine and Digital Health. John Wiley & Sons; 2020. ISBN:1-119-57577-X

26. Stekler JD, McMahan V, Ballinger L, Viquez L, Swanson F, Stockton J, Crutsinger-Perry B, Kern D, Scott JD. HIV Pre-exposure Prophylaxis Prescribing Through Telehealth. JAIDS Journal of Acquired Immune Deficiency Syndromes 2018 Apr;77(5):e40–e42. doi: 10.1097/QAI.0000000000001621

27. Wong KYK, Stafylis C, Klausner JD. Telemedicine: a solution to disparities in human immunodeficiency virus prevention and pre-exposure prophylaxis uptake, and a framework to scalability and equity. mHealth 2020 Apr;6:21–21. doi: 10.21037/mhealth.2019.12.06

28. Budak JZ, Scott JD, Dhanireddy S, Wood BR. The Impact of COVID-19 on HIV Care Provided

via Telemedicine—Past, Present, and Future. Current HIV/AIDS Reports Springer; 2021 Apr;18(2):98–104. PMID:33616811

29. Hoagland B, Torres TS, Bezerra DRB, Geraldo K, Pimenta C, Veloso VG, Grinsztejn B. Telemedicine as a tool for PrEP delivery during the COVID-19 pandemic in a large HIV prevention service in Rio de Janeiro-Brazil. The Brazilian Journal of Infectious Diseases 2020 Jul;24(4):360–364. doi: 10.1016/j.bjid.2020.05.004

30. Dourado I, Magno L, Soares F, Massa P, Nunn A, Dalal S, Grangeiro A, The Brazilian PrEP1519 Study Group. Adapting to the COVID-19 Pandemic: Continuing HIV Prevention Services for Adolescents Through Telemonitoring, Brazil. AIDS Behav 2020 Jul;24(7):1994–1999. doi: 10.1007/s10461-020-02927-w

31. Grangeiro A, Santos LAD, Estevam DL, Munhoz R, Arruda É, De Moraes RA, De Quadros Winkler L, Neves LADS, Santos JCV, Kruppa M, Zucchi EM, Escuder MM, Leal AF, Koyama MAH, Peres MFT, Couto MT, Neto JE, The Combine! Research Group. Telehealth effectiveness for pre-exposure prophylaxis delivery in Brazilian public services: the Combine! Study. J Int AIDS Soc 2023 Sep;26(9):e26173. doi: 10.1002/jia2.26173

32. Bosi MLM, Gastaldo D. Tópicos avançados em pesquisa qualitativa em saúde: fundamentos teórico-metodológicos. Petrópolis - RJ: Editora Vozes; 2021.

33. Patton MQ. Qualitative evaluation and research methods. Research in Nursing & Health. Cambridge: SAGE Publications, inc; 1990. PMID:18000076ISBN:0-8039-3779-2

34. Gomes R, de Souza ER, Minayo MC de SC de S, Malaquias JV, da Silva CFR, Others, Malaquias JV, Minayo MC de SC de S, de Sousa ER. Organização, processamento, análise e interpretação dos dados: o desafio da triangulação. In: MINAYO MC de S, de ASSIS SG, de SOUZA ER, editors. Avaliação por triangulação de méodos: abordagem de programas sociais Rio de Janeiro: Editora Fiocruz; 2005. p. 185–221. ISBN:85-89697-06-1

35. Brasil. Painel PrEP. Ministério da Saúde do Brasil - Departamento de Doenças de Condições Crônicas e Infecções Sexualmente Transmissíveis. 2024. Available from: http://www.aids.gov.br/pt-br/painel-prep [accessed Sep 9, 2023]

36. Polidoro M, Kauss B, Miskolci R, Canavese D. O panorama atual da estratégia da profilaxia pré-exposição (PrEP) no Brasil e os caminhos possíveis para busca da equidade em saúde | Polidoro | Saúde & Transformação Social / Health & Social Change. Saúde & Transformação Social/Health & Social Change 2020;11(1):1–11.

37. Couto MT, Machin R, Costa MRM, Rocha ALS, Modesto AA, Germani ACC. A (in)visibilidade gênero no currículo e na prática de duas especialidades médicas. Rev bras educ med 2021;45(1):e040. doi: 10.1590/1981-5271v45.1-20200297

38. Parameshwaran V, Cockbain BC, Hillyard M, Price JR. Is the Lack of Specific Lesbian, Gay, Bisexual, Transgender and Queer/Questioning (LGBTQ) Health Care Education in Medical School a Cause for Concern? Evidence From a Survey of Knowledge and Practice Among UK Medical Students. Journal of Homosexuality 2017 Feb 23;64(3):367–381. doi: 10.1080/00918369.2016.1190218

39. Ziegler E, Charnish E, DeCiantis N. Out of the Closet: Nurse Practitioner Faculty Knowledge,

Comfort and Willingness to Incorporate LGBTQ2SA Content into the Curriculum. Can J Nurs Res 2022 Sep;54(3):313–319. doi: 10.1177/08445621211073289

40. Nelson LE, Boyd DT, Beauchamp G, Emel L, Wilton L, Whitfield D, Ramos SR, Ajiboye W, Hill MJ, Conserve DF, Thomas P, Hightow-Weidman L, Shoptaw S, Magnus M, Mayer KH, Piwowar-Manning E, Fields SD, Wheeler DP, for the HPTN 073 Study Team. Freedom as Prevention: Mechanisms of Autonomy Support for Promoting HIV Pre-Exposure Prophylaxis Use and Condom Use among Black MSM in 3 US Cities—HPTN 073. J Urban Health 2022 Dec;99(6):1157–1169. doi: 10.1007/s11524-022-00666-y

41. Saxton PJW, Azariah S, Cavadino A, Forster RF, Jenkins R, Werder SF, Southey K, Rich JG. Adherence, Sexual Behavior and Sexually Transmitted Infections in a New Zealand Prospective PrEP Cohort: 12 Months Follow-up and Ethnic Disparities. AIDS Behav 2022 Aug;26(8):2723–2737. doi: 10.1007/s10461-022-03617-5

42. Rubin GS. Thinking sex: Notes for a radical theory of the politics of sexuality. In: Vance CS, editor. Social perspectives in Lesbian and Gay Studies; A reader London: Routledge London; 1984. p. 100–133. PMID:663272ISBN:0-203-16944-1

43. Kerr J, Ayangeakaa S, Bullock NAA, Burton K, Combs R, Harris L, Sterrett-Hong E, Rozema I, Sears J, Northington T. A Qualitative Exploration of Various Stigmas Impacting HIV Pre-Exposure Prophylaxis (PrEP) Uptake Among African American Young Adults. Family & Community Health 2022 Oct;45(4):218–227. doi: 10.1097/FCH.0000000000000346

44. Ferraz D, Couto MT, Zucchi EM, Calazans GJ, Dos Santos LA, Mathias A, Grangeiro A. AIDS- and sexuality-related stigmas underlying the use of post-exposure prophylaxis for HIV in Brazil: findings from a multicentric study. Sexual and Reproductive Health Matters 2019 Nov 29;27(3):107–121. doi: 10.1080/26410397.2019.1650587

45. Santos LAD, Couto MT, Mathias A, Grangeiro A. Hombres heterosexualmente activos, masculinidades, prevención de infección por VIH y búsqueda de profilaxis posexposición sexual consentida. SC 2019 Dec 27;15:e2144. doi: 10.18294/sc.2019.2144

46. Hughes SD, Koester KA, Engesaeth E, Hawkins MV, Grant RM. Human Enough: A Qualitative Study of Client Experience With Internet-Based Access to Pre-exposure Prophylaxis. J Med Internet Res 2021 Jul 5;23(7):e22650. doi: 10.2196/22650

47. Koester KA, Hughes SD, Grant RM. “A Good Habit”: Telehealth PrEP Users Find Benefit in Quarterly Monitoring Requirements. J Int Assoc Provid AIDS Care 2020 Jan 1;19:232595822091926. doi: 10.1177/2325958220919269

48. Gajarawala SN, Pelkowski JN. Telehealth Benefits and Barriers. Journal for Nurse Practitioners 2021 Feb;17(2):218–221. doi: 10.1016/j.nurpra.2020.09.013

49. Wootton AR, Legnitto DA, Gruber VA, Dawson-Rose C, Neilands TB, Johnson MO, Saberi P. Telehealth and texting intervention to improve HIV care engagement, mental health and substance use outcomes in youth living with HIV: a pilot feasibility and acceptability study protocol. BMJ Open 2019 Jul;9(7):e028522. doi: 10.1136/bmjopen-2018-028522

50. Marsh P, Polster R, Ricco G, Kemery SA. Factors Influencing Faculty Decisions to Teach LGBTQ Content in Undergraduate Nursing Programs. Nurs Educ Perspect 2022 Jul;43(4):228–

232. doi: 10.1097/01.NEP.0000000000000955

51. Taliaferro LA, Mishtal J, Chulani VL, Middleton TC, Acevedo M, Eisenberg ME. Perspectives on inadequate preparation and training priorities for physicians working with sexual minority youth. Int J Med Educ 2021 Oct 27;12:186–194. doi: 10.5116/ijme.615c.25d3

52. Negreiros FRND, Ferreira BDO, Freitas DDN, Pedrosa JIDS, Nascimento EFD. Saúde de Lésbicas, Gays, Bissexuais, Travestis e Transexuais: da Formação Médica à Atuação Profissional. Rev bras educ med 2019 Mar;43(1):23–31. doi: 10.1590/1981-52712015v43n1rb20180075

53. Raimondi GA, Abreu YRD, Borges IM, Silva GBMD, Hattori WT, Paulino DB. Gênero e Sexualidade nas Escolas Médicas Federais do Brasil: uma Análise de Projetos Pedagógicos Curriculares. Rev bras educ med 2020;44(2):e045. doi: 10.1590/1981-5271v44.2-20190050

54. Rufino AC, Madeiro AP. Teaching sexuality in Brazilian medical schools. Einstein (São Paulo) 2015 Mar;13(1):vii–viii. doi: 10.1590/S1679-45082015ED3306