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## Perceived feasibility and acceptability of HIV prevention research with daily oral PrEP among young transgender women (YTGW) who sell or trade sex in Bangkok and Pattaya, Thailand

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### Abstract

Young transgender women (YTGW) who sell or trade sex have among the highest HIV incidence rates in Thailand. Using qualitative methods, we assessed perceived acceptability, feasibility and optimal design of a combination HIV preventive intervention including PrEP, for YTGW. Key informant interviews were conducted during July 2016-July 2018 with 21 YTGW, aged 18–26 years, who sold sex and resided in Bangkok or Pattaya, Thailand. Grounded theory and content analysis were used for data analysis. Most YTGW interviewed reported high interest in HIV prevention research and believed its participation supported sexual health. However, participants perceived HIV studies as complicated and time-consuming. Regarding PrEP, participants suggested more PrEP options beyond daily oral PrEP and expressed concerns related to perceived side-effects of PrEP, including interaction with gender-affirming hormone therapy. Improving PrEP knowledge, being able to self-assess HIV risk, and reducing HIV/PrEP stigma could increase interest in research and PrEP uptake among YTGW.

### Keywords

HIV; PrEP; Young; Transgender women; Sex trade; Thailand

## Introduction

In 2020, 41,668 transgender women (TGW) were estimated to reside in Thailand, with a projected 3,778 TGW in Bangkok believed to be at substantial risk of HIV infection (Jacobson & Siraprapasiri, 2019). In 2019, UNAIDS estimated an 11% HIV prevalence and 42% HIV testing and status awareness among men who have sex with men (MSM) and TGW in Thailand (UNAIDS, 2019). In the Bangkok MSM Cohort Study, a longitudinal cohort study that followed 1,372 MSM and TGW from 2006–2013, HIV incidence was 5.3 per 100 person-years among MSM and TGW (data were not disaggregated by gender; van Griensven et al., 2015). HIV incidence was exceptionally high among young (age 18–21 years) MSM and TGW, with 8 new HIV infections per 100 person-years (Chemnasiri et al., 2018), and among those who sold or traded sex (11 per 100 person-years) (Dunne et al., 2019). Data from several studies showed that HIV prevalence and incidence had decreased among MSM in Bangkok from 2017 to present but remained high among TGW, with HIV prevalence ranging from 8.8 to 9.0% (Crowell et al., 2002; Ramautarsing et al., 2020; Seekaew et al., 2018).

PrEP was first approved for use in 2012 as a daily regimen of tenofovir/emtricitabine (TDF/FTC) by U.S. Food and Drug Administration (US FDA) and was approved by the World Health Organization (WHO) in 2015 as an HIV preventive intervention to end AIDS (Pyra et al., 2019). The Thailand Ministry of Public Health began introducing daily oral HIV pre-exposure prophylaxis (PrEP) in 2014 after PrEP was shown to be more than 90% effective in reducing HIV infection for those who adhered to the recommended daily oral PrEP regimen (Bureau of AIDS, TB, and STIs, 2017). In 2016, PrEP awareness and PrEP uptake were quite low in the Asia-Pacific region; poor knowledge about PrEP was a key PrEP implementation barrier (Zablotska et al., 2016). In 2017, the Thailand National Guidelines on HIV/AIDS Treatment and Prevention recommended PrEP for high-risk populations, including serodiscordant couples, MSM, male and female sex workers, and injection drug users, but did not specifically recommend PrEP therapy for TGW until 2021 (Ruxruntham et al., 2022). In 2019, results from the Princess PrEP program in Thailand showed that PrEP acceptance among MSM and TGW was found to be low even though PrEP was offered free-of-charge, including for those under 25 years of age (Ramautarsing et al., 2020).

In previous HIV prevention studies, TGW who have a gender identity or gender expression that differs from assigned sex at birth are traditionally classified as MSM in Thailand's HIV surveillance data (Seekaew et al., 2022). Due to a lack of sufficient information, specific data and potential applications for TGW, traditional HIV prevention models may not effectively accommodate TGW-specific needs (Suriyasarn, 2014; Beyrer et al., 2013). Community response to HIV prevention research, coupled with doubts about minor drug-drug interactions between gender-affirming hormone therapy and tenofovir/emtricitabine in pharmacologic studies, highlight the current need for focused research efforts that are relevant to the needs and experiences of TGW (Yager & Anderson, 2020; Hiransuthikul et al., 2019; Shieh et al., 2019). The sub-population of young TGW (YTGW) who sell and trade sex with men are at exceptionally high risk of HIV acquisition and transmission (WHO, 2015); however, YTGW have been less studied and are difficult to retain in

research studies due to the risk of disclosing what most countries consider to be an illegal occupation. This, in turn, makes the development of HIV prevention packages including PrEP particularly urgent for this sub-population (Thomson & Vittal Katikireddi, 2019; van Griensven et al., 2021); however, the feasibility and acceptability of combination HIV prevention including PrEP among YTGW who sell or trade sex is unknown.

Specific information on feasibility and acceptability of HIV research participation and prevention research that includes daily oral PrEP among this target group is crucial in planning studies designed to prevent HIV infection and to the implementation of daily oral PrEP. Such information may also be informative for implementation of emerging PrEP modalities. Given high incidence in this population but limited research specifically for this group, we focus specifically on the needs, concerns, and suggestions regarding HIV prevention research and the interest in PrEP among YTGW. Through the qualitative methods, we aim to learn how best to access YTGW who sell or trade sex and how to engage them in the HIV prevention research, including how to optimally provide PrEP and clinical services to fit to needs of YTGW. Given the limited data available on daily PrEP experiences among YTGW who sell or trade sex in Thailand, this study used qualitative methods to examine the potential feasibility and acceptability of providing combination HIV prevention with PrEP among YTGW who receive money, goods, or services for sex in Bangkok and Pattaya, Thailand.

## Methods

### Study design

This formative, qualitative study conducted key informant interviews (KIIs) with the aim of informing the subsequent combination HIV prevention intervention with PrEP offer study design and implementation plan for young (18–26 year old) men who have sex with men and transgender women. KIIs are qualitative in-depth interviews to collect in-depth information from people who have insight into what is happening in the area or who have knowledge about the topic of interest. Participants were enrolled in Bangkok and Pattaya (a well-known tourist destination for the Thai sex trade with bar-beers, host bars, go-go bars, massage parlors, saunas, and cabarets), Thailand. Participants were recruited from HIV testing and treatment clinics, entertainment venues, saunas, bars, schools, universities, community-based organizations (CBOs) and online channels through dating applications and partner-seeking websites. During study recruitment, the participants were encouraged to participate in the KII and the interview topics were informed. The semi-structured question guide would allow for open exchange, free flow of ideas, and in-depth discussion of topics such as HIV prevention knowledge and practice, condom use, PrEP knowledge, sex work, and the feasibility and acceptability of participation in a combination intervention study with PrEP offer. Prior to the KII, the participants were informed of the purpose of the study and that the findings from key informant interviews would be used to develop and refine the subsequent HIV preventive intervention study design tailored for young transgender women who sell sex.

The subsequent HIV preventive intervention study was the *Effectiveness and Cost Effectiveness of a Combination HIV Preventive Intervention* with and without daily oral

PrEP with adherence support among YMSM and YTGW in Bangkok and Pattaya, Thailand. The subsequent study was an open label, non-randomized assessment comparing the relative effectiveness of a combination preventive intervention with and without daily oral PrEP with adherence support to prevent HIV acquisition (Weir et al., 2022, 2023; Wirtz et al., 2020).

### Study population

Eligible participants were aged 18 – 26 years, assigned male sex at birth, of Thai nationality, able to speak and read Thai, who self-reported selling or trading sex to men in the preceding 12 months, were currently living in the Bangkok or Pattaya area, and consented to the interview. YTGW self-identified their gender identity in a short questionnaire collected before the interviews.

### Study sites

Participants were enrolled and interviewed at one of the four study sites in Bangkok and Pattaya, Thailand: Silom Community Clinic @TropMed (SCC @TropMed), Bangkok; Rainbow Sky Association of Thailand (RSAT), Bangkok; and Service Workers in Group Foundation in Bangkok and Pattaya (SWING Bangkok and SWING Pattaya). All four collaborating sites are community-based LGBTI friendly clinics and have been providing sexual health counseling, HIV/AIDS, and STI services to MSM, TGW, and sex workers for longer than 10 years. They are located in the university area, city red light district, and near adult entertainment venues. Participants could choose to be interviewed in closed and private meeting rooms at one of the proposed study sites or another location nearby upon their convenience. Both the qualitative researcher and the participant had to agree that the alternative location was proper, confidential, and safe location to conduct the interviews.

### Data collection

KIIs were conducted in-person by trained qualitative staff using the local language (Thai). Between July 2016-July 2018, 86 KIIs were conducted among 24 venue management, 41 YMSM, and 21 YTGW. All participants provided socio-demographic and behavioral data which were collected using a short questionnaire. The private-KII approach was selected as the most suitable qualitative approach to build rapport with the young target population and respect sensitivities regarding sex trade experience. The research questions were developed using thematic framework. Semi-structured interview guides included the following domains: perceptions of sexual decision-making, health seeking behavior, HIV prevention knowledge and practice, condom use, sex work, PrEP knowledge, and the feasibility and acceptability of participation in a combination intervention study with PrEP offer. Semi-structured question guides contained existing themes for both MSM and TGW, but TGW-specific questions were asked if participants mentioned TGW-links during the interview, such as breast augmentation, neovagina creation, gender equality, and other related preferences (i.e. partner-seeking through transgender sex worker websites).

### Data analysis

The presented analysis is restricted to KII data collected from YTGW participants in order to specifically examine the qualitative data associated with this unique group. From a total

of 86 interviews conducted among venue managers, YMSM, and YTGW, we selected 21 KIIs where the respondent self-identified as YTGW in the short pre-interview questionnaire for analysis. Thai transcriptions from the interviews were analyzed using qualitative analysis software (Atlas.ti version 7.5.18) to manage and code interview transcripts. After conducting data analysis in the Thai local language, the illustrative quotes of each theme were translated into English for the manuscript. For this analysis, responses by YTGW with experiences in the sex trade that reflect perceptions and experiences related to use of daily oral PrEP as well as their suggestions for the upcoming research studies were identified and grouped. Thematic framework analysis was used and was guided by main questions and probes from the semi-structured interview guides. A single trained and experienced qualitative staff member performed data coding for all 21 KIIs to maintain data analysis consistency.

### Ethical Assurance

All participants provided written informed consent prior to their participation in the study. This study protocol was approved by the Ethical Review Committee for Research in Human Subjects of the Thailand Ministry of Public Health, the Ethics Committee of the Faculty of Tropical Medicine, the Johns Hopkins Bloomberg School of Public Health Institutional Review Board, the Emory University Institutional Review Board, and by the Institutional Review Board of the U.S. Centers for Disease Control and Prevention.

## Results

### Results from the short questionnaire

**Socio-demographic characteristics of participants**—YTGW participants were a median age of 24 years (range 20–26 years) and a majority of participants reported having a primary/secondary school education or less (66.7%) and full-time employment (71.4%).

**Sex work experiences of participants**—Two-thirds YTGW participants reported having exchanged or sold sex for more than 12 months (66.7%) and reported having exchanged or sold sex through a combination of methods including Internet-based, street-based, venue-based, and “sugar daddy” (i.e., a wealthy man who spends freely on a younger person, generally a woman or a gay man, in return for companionship or sexual intimacy) (47.6%) (Table 1).

**Sexual preference and condom use of participants**—YTGW participants reported usually performing both oral and anal sexual intercourse (90.5%), and most reported performing receptive-only anal intercourse (71.4%). Among the YTGW participants interviewed, more than half reported always using condoms in the past 12 months (61.9%) and most reported using a condom during their last anal sex experience (85.7%) (Table 1).

### Results from the key informant interviews

Highlights from key informant interviews were broadly classified into two distinct thematic categories related to combination HIV prevention research and implementation with daily oral PrEP: perceived feasibility and acceptability; and perceived implementation challenges.

## Perceived feasibility and acceptability of HIV intervention research focused on PrEP

- High interest in HIV prevention research and PrEP exploration:

Most interviewed YTGW reported a strong interest in participating in HIV prevention research, particularly in regard to how participation can result in access to routine health checks and HIV prevention services. Some participants indicated that based on their prior experience, HIV prevention research often provides services that are similar to an annual check-up though only focusing on their sexual health. Participation in HIV research was perceived to provide health benefits, including access to free health services and HIV preventive tools such as PrEP and condoms with lubricants. Furthermore, participants felt that PrEP seemed to be a promising intervention and an additional tool to prevent HIV acquisition.

*“If thinking in terms of self- benefit, it is good to have my health checked up. It is the same as taking care of my body.”* (KII 12, Bangkok, 21 years of age)

*“Fascinating, PrEP is another prevention tool just like condoms. We never know when the condom will break. It is good having PrEP as another tool to protect ourselves. If PrEP is available, it is remarkable. It is like we have an umbrella in hands in the middle of the rain.”* (KII 15, Bangkok, 25 years of age)

- Belief that participation in research will have a positive impact and support personal sexual health:

The YTGW interviewed believed HIV prevention research participation supported prevention education, consistent condom use, and improved condom negotiation skills, while reducing potential HIV exposures associated with condom breakage or removal. Most YTGW participants believed that participating in HIV prevention research would increase their HIV prevention knowledge and help them to be courageous in insisting on using condoms with their sexual partners. By using PrEP, YTGW who practiced receptive sexual roles felt they would have a back-up self-protection HIV preventive option and would have less fear of HIV acquisition in situations when condoms broke or were removed. Participants felt that PrEP could prevent HIV for both them and their partners, as well as avoid domestic arguments for those who reported that their stable partners were unaware of their engagement in sex work.

*“Is it called ‘PrEP’? I want to know what it is and if it can protect me (from HIV), because I have experienced condom breakage. Sometimes, my sexual partner did not put it on correctly. When it was roughly grated, it broke. And once my casual partner secretly took the condom off and I only later found this out.”* (KII 7, Bangkok, 24 years of age)

*“I’m very interested in potential HIV/PrEP research because my boyfriend does not always use condoms. He doesn’t know I’m selling*



*sex. Once I discovered I had gonorrhea, I started to use condoms.”* (KII 20, Bangkok, 20 years of age)

### **Perceived challenges in implementation of HIV intervention research focused on PrEP**

- Perceived HIV prevention research with PrEP to be demanding/complicated/ time-consuming procedures related to pre-existing PrEP safety concerns during recruitment for HIV/PrEP prevention studies:

During interviews, some participants specifically criticized previous PrEP studies, indicating that complicated and time-consuming study procedures requiring significant commitment had been a barrier to participation. Specifically, those interviewed felt the PrEP safety monitoring procedures placed too much responsibility on the participant and they preferred to spend their time on something else.

*“I almost joined one of research studies just like this project, but the study procedures that involved liver and kidney function testing were overwhelming.”* (KII 1, Bangkok, 24 years of age)

*“Some people do not want to join the study...because they don’t want to waste their time (on study procedures).”* (KII 12, Bangkok, 21 years of age)

- Periodic HIV testing and HIV stigma due to participation in HIV prevention research with PrEP:

YTGW expressed concerns about the pain from unavoidable blood draws which is a mandatory study activity when participating in HIV/PrEP research and during PrEP use. Pain associated with phlebotomy might be minimal but terrified some participants. Some participants were interested in participating in a general PrEP study, but could not overcome perceived PrEP side effects or their fear about a potential HIV diagnosis.

*“I am curious about the side effects of taking PrEP. My experiences of taking birth control pill are nausea and mood swings. So, I want to know if there are any side effects from taking PrEP if I decide to take it.”* (KII 7, Bangkok, 24 years of age)

*“The reactions of most people about HIV testing are “I’m not HIV infected”, “I don’t want to be tested”, “I don’t have any virus”, “I’m not promiscuous”, and “I use a condom all the time”. Everyone seems to be shy and afraid of testing positive. They said they want to get tested but actually would rather not. They are afraid of getting tested and finding they are positive.”* (KII 2, Bangkok, 24 years of age)

- Concerns about daily oral PrEP as a barrier to participate in HIV prevention research:

- a. PrEP use resistance due to potential interactions with gender-affirming hormone, the side effects of long-term use, and PrEP-associated stigma(s)

Participants described rumors that PrEP could possibly impact their feminizing hormone therapy (FHT) through the interaction with PrEP pill-taking. Participants described routinely taking many pills on a daily basis, including their FHT and feminizing beauty supplements which included vitamins, collagen, and glutathione. However, many were concerned that including daily PrEP into their daily routine would damage their liver and kidney.

*“I’m afraid that taking PrEP will bring my masculine body back. I’m afraid of possible drug reactions between PrEP and hormones. It might get mixed up.”* (KII 10, Bangkok, 23 years of age)

Furthermore, participants raised concerns that participating in HIV or PrEP studies risked disclosure of sex work activities and stigmatization as a person at high-risk for HIV. Participants indicated they needed a rationale for recommending PrEP to others that did not risk stigmatization as a sex worker.

*“As I said, if I (as a part-time sex worker) introduced others in the university to join a PrEP study, it means that I know they are our target group because I intentionally focus on PrEP use to them. It is a kind of stigma. Other students will look at me negatively.”* (KII 12, Bangkok, 21 years of age)

- b. Fear of breakthrough HIV infections while taking PrEP

Given available evidence that daily, oral PrEP trials showed that PrEP effectiveness exceeded 90% in preventing HIV infection but was not 100%, YTGW expressed the concern that there still remains the possibility that PrEP may not prevent HIV transmission. In addition, taking PrEP may actually promote more condomless sex among YTGW who completely rely on PrEP.

*“I saw many bareback-sex shows on Twitter, involving mostly gay men. I’d bet they were taking PrEP while doing it. Or else why would they dare have bareback group sex? I wouldn’t even dare try this (condomless sex).”* (KII 16, Bangkok, 25 years of age)

- c. Daily PrEP exceeded a perceived lower level of risk. HIV prevention research with PrEP should have more PrEP dosing options appropriate to different risks and patterns of sex

Participants sought additional dosing options for PrEP regimens that enabled a diversity of sexual behaviors and frequencies. Especially



among young and sexually-active populations, sex exchange was frequently reported as often unplanned and unpredictable.

*“We don’t know what they (clients) want to do with us. Some clients come for drinks only. Some clients come to find us for oral sex or hand job service. Once, one foreigner came to Thailand for a week. He came to the bar, paid the 7-day “take-out” fee, and took me out to accompany him.” (KII 21, Pattaya, 23 years of age)*

Participants reported that daily PrEP exceeded a perceived lower level of risk when transactional sex encounters were infrequent. Participants described engaging in transactional sex approximately once or twice a week, depending on their cash flow. Many described supplementing full-time employment by selling sex as a part-time job, particularly during times of economic crisis. Almost all YTGW believed that taking daily gender-affirming hormone would reduce their sexual desire and arousal.

*“I don’t like having sex because I’m taking hormones. Hormones make me lose my sexual desire and my body is softening gradually. It makes my penis soften as well.” (KII 10, Bangkok, 23 years of age)*

*“I usually work at the office but only earn a low income. So, sometimes I sell sex through an online application and I once found this British client. He asked me to stop selling sex and paid for everything while we went out, but it’s not enough unless he gives me a regular salary - then I can stop.” (KII 4, Bangkok, 24 years of age)*

### **Suggestions to address misuse of PrEP and guide to increase PrEP uptake:**

#### **1. PrEP use as a negotiation tool for transactional sex**

Some interviewed participants reported PrEP-use could be advantageous for sex workers as a bargaining tool to negotiate for protected-condomless sex offered at a higher rate for clients. Some YTGW participants sometimes agree to bareback sex with clients when they are offered more money than they would receive for sexual acts with a condom. In addition, the participants believed PrEP will become a tool, particularly for online networks, to label themselves as an HIV-free sex worker and demand a higher price, particularly for condomless sex.

*“With PrEP, I can have bareback sex with regular clients who look wealthy, dress properly, or who look old but handsome. I paid a 999 baht fee to post myself on an advertisement page in a VIP chatroom. I usually get government officers and VIP clients; they love bareback sex.” (KII 5, Bangkok, 23 years of age)*

2. Combine protection against STIs and desired beauty supplements to improve PrEP uptake and adherence among YTGW

Participants were surprised and confused when they were informed that condom use was still needed when taken as prescribed – PrEP protects them from HIV transmission but not from other STIs. Only when PrEP is designed to combine both HIV and STI preventive intervention would condom use no longer be needed.

*“In fact, PrEP should protect us from all diseases, don’t you think?”*  
(KII 12, Bangkok, 21 years of age)

Some participants recommended that researchers develop combination formulas combining PrEP with beauty products to increase adherence.

*“If PrEP is mixed with Collagen and Glutathione, one small-sized pill for all.”* (KII 16, Bangkok, 25 years of age)

## Discussion

The findings of this study offer insights into issues affecting HIV prevention research and PrEP use among young transgender women who sell or trade sex in Thailand, and illustrate feasibility and acceptability themes for future research focused on emerging PrEP modalities.

Similar to other studies, transgender women were found to have high interest in HIV prevention and PrEP research (Phanuphak et al., 2018; Wansom et al., 2021; Jalil et al., 2022). However, linking PrEP initiation and monitoring to procedures requiring time and physical presence at healthcare facilities were a common barrier for TGW who sell sex. TGW have commonly reported prior negative experiences at healthcare facilities, including overlooking/dismissing their needs and concerns regarding gender identity and gender affirmation. Minimizing gender identity and stigmatization of sex work diminished trust in healthcare staff and blocked development of a productive provider/patient relationship (Rael et al., 2018). Facilitating access to healthcare facilities, avoiding stigmatization, and encouraging gender identity acceptance have been shown to increase healthcare engagement (Iwamoto et al., 2019; Van Schuylenbergh et al., 2019), particularly for critical prevention services with high-risk groups.

Participants who were not frequently sexually active or exchanging sex believed daily oral PrEP exceeded their perceived level of risk. Even though intermittent PrEP or “On-demand” PrEP is available for MSM at some locations in Thailand, non-daily dosing schedules are not recommended by the Thai Ministry of Public Health (MOPH), and are not available for TGW (Ruxrungham et al., 2022; Downing, Yee & Sevelius, 2022) in Thailand since adherence to the daily schedule is required to maintain effective drug levels among TGW taking feminizing hormones (CDC, 2024). Additional research is needed to determine the effectiveness of intermittent PrEP use among TGW taking hormone therapy.

Daily, oral PrEP use remains limited in Thailand. PrEP is not available for over-the-counter purchase, requiring a provider to prescribe PrEP and thereby leaving condoms as the sole, readily available and readily accessible HIV prevention option. Condom use is dependent on the insertive sexual partner. As most TGW who exchange sex reported performing a receptive anal sex role, they are left with fewer options for HIV prevention. Increasing PrEP availability among YTGW who exchange sex is important for supporting HIV prevention goals, particularly among those who engage in inconsistent sex or have high risk behaviors with clients. Several studies also reported that PrEP has been used to negotiate higher risk activities such as bareback sex and group sex (Seekaew et al., 2019; Kurtz & Buttram, 2016).

In 2021, long-acting injectable cabotegravir (CAB-LA) was approved by the WHO and U.S. FDA. Injectable CAB-LA has been shown to be highly effective in preventing HIV infection and is a potential alternative option for TGW who do not wish to take daily oral PrEP (CDC, 2021). However, despite its high efficacy and preference for people who prefer to receive an injection once every 8 weeks over taking daily oral PrEP, CAB-LA may prove to be too expensive for use in developing countries (Padma, 2022). However, results from our study suggest that long-acting injectable PrEP may be an important option for TGW who felt that daily, oral PrEP was too excessive relative to infrequent transactional sex or for those who were concerned about stigma associated with visible daily medication.

To successfully promote PrEP use among interested or skeptical potential YTGW PrEP users, all concerns and misconceptions should be fully answered and addressed to optimize PrEP safety and its effectiveness. Clarifying evidence regarding drug-drug interactions between feminizing hormone use and PrEP has been shown to improve PrEP uptake (Ogunbajo et al., 2021). PrEP acceptability and adherence can be greatly increased if their concerns are addressed by providing information to mitigate PrEP side effects and to minimize pill size (Rael et al., 2018). Some participants believed that PrEP formulations that combine PrEP medication with STI prevention or PrEP medication with beauty regimens or feminizing hormone would support gender affirmation and HIV prevention (Aguayo-Romeo, Reisen, Zea, Bianchi & Poppen, 2015).

HIV prevention studies that include demanding/complicated procedures for PrEP use, involve a high level of medical visits, and face recruitment challenges due to pre-existing PrEP-safety concerns, including pain associated with blood-based HIV testing, were mentioned by participants as unavoidable for HIV testing and PrEP initiation. To confirm a participant's eligibility for an HIV/PrEP prevention study in Thailand, blood draws must be conducted for HIV testing, which involves kidney function testing to include creatinine and creatinine clearance, Hepatitis B and Hepatitis C testing, and STI testing for syphilis, gonorrhea, and chlamydia at screening and on a quarterly basis (Ruxrungtham et al., 2022). Oral fluid can be used for some rapid HIV platforms, which is useful when there is an aversion to blood draws. However, oral HIV platforms may be less sensitive at detecting acute or recent HIV infection than traditional blood-based platforms and, thus, are not recommended for HIV testing during PrEP use (CDC, 2021). Ultimately, our findings highlight that HIV prevention research can be enhanced by reducing participant burden to

ensure that the study population is representative of the population that could best benefit from emerging HIV prevention options.

### Limitations

The data collection was conducted at the time when PrEP was beginning to be known among YTGW in Thailand. PrEP was perceived to be a new, promising HIV preventive tool despite low PrEP awareness and knowledge. However, the study results are relevant to emerging PrEP options. The discussion topics are sensitive and personal; thus, study findings may reflect some level of social desirability bias. Having been recruited through clinics and community-based organizations, respondents may have had better access to health facilities and HIV/PrEP knowledge compared to the general YTGW community. During the interview, most participants could not solely focus on the interview. Frequently, they were interrupted by customer calls because confirmation of their availability was essential in this competitive business. Further, TGW enrolled from different geographic locations and age strata may influence how participants encountered PrEP and HIV prevention research. Due to sensitivities regarding minors associated with selling or trading sex (particularly confidentiality issues where parental consent is required for research participation) as well as access to health care for migrant populations, both groups were excluded from participation in the research.

### Conclusions

Overall, those interviewed reported a high level of interest to participate in HIV prevention and PrEP studies as well as a strong belief that prevention research improves sexual health, with regular check-ups, free PrEP and free condoms. Many participants expressed interest in participating in HIV research in order to access PrEP. They believed PrEP provides an autonomous option to prevent HIV acquisition that does not rely on a sexual partner's agreement. Participants suggested that study participation can lead to improved condom use and condom negotiation skills.

While overall acceptance of the HIV prevention research was positive, several potential barriers to feasibility surfaced during the interviews. Participants expressed the concern that daily dosing was not responsive to varied sex patterns and behaviors and exceed their level of risk. They also stated that HIV prevention research involved complicated and time-consuming procedures. They were also concerned about discovering their HIV status, PrEP interacting with hormones, the long-term side effects of taking daily oral PrEP, and PrEP-associated stigma. Participants expressed hesitancy about taking PrEP, given that it was not 100% effective and may lead to unsafe condomless sex. In addition, many stated that PrEP could be intentionally used as a tool to increase the negotiated price for transactional sex.

However, the accomplishment of PrEP intervention depends on PrEP use itself. Most participants raised concerns about the frequency of PrEP oral dosing, possible side effects, misconceptions, and social stigma. These issues are related to PrEP use. Participants may initiate PrEP but will shortly not adhere and stop PrEP use over time.

PrEP research and implementation were perceived to have both positive and negative impacts for YTGW who sell or trade sex. Optimal research implementation among this high-risk YTGW population should be responsive to perceived concerns and challenges, and supportive of ways to improve HIV prevention. Qualitative research can be used to examine and address the key uncertainties prior to a full intervention. Our findings suggest that improving knowledge about PrEP, being able to self-assess HIV risk, and reducing HIV/PrEP stigma could increase interest in research and PrEP uptake among high-risk YTGW who can benefit from PrEP. Findings may also offer insights for implementation of emerging PrEP modalities for TGW.

After this study was conducted, PrEP became gradually known as one of the most effective HIV prevention tools; however, PrEP uptake remained low among the TGW community (Division of AIDS and Sexual Transmitted Diseases, 2021). Several HIV studies enrolled small numbers of TGW, which caused the study findings to be insufficiently powered to detect an effect for TGW (Spiegel, 2020; Weir et al., 2023). The results of this qualitative study showed that promoting the HIV prevention research as a sexual health check with counseling service would be acceptable for TGW. Given the concern of frequent visits observed in our study, efforts to improve enrollment and retention of TGW in the HIV prevention research may benefit from telemedicine services as an alternative channel to access HIV testing and PrEP. Since the time of this study, the PrEP in the City campaign, which targeted Thai TGW was also launched in Bangkok to normalize the use of PrEP. In this context, it is important to address the concerns about drug-drug interactions between gender-affirming hormone therapy and PrEP to support PrEP initiation and adherence for TGW.

In terms of biomedical intervention progress, oral PrEP use has increased over time and on-demand PrEP was approved to be another optional regimen for use in Thailand in 2022. However, on-demand PrEP was not recommended for TGW by Thailand Ministry of Public Health. Additionally, long-acting injectable PrEP was later developed as alternative to daily oral pills and found to be more effective than daily oral PrEP at preventing HIV acquisition among MSM and TGW (Landovitz et al., 2023); however, long-acting injectable PrEP has not yet approved for use in Thailand, despite that our findings suggest this may be an important and acceptable option for TGW. Ultimately, expanding options and availability of PrEP across Thailand has continued to increase awareness of PrEP awareness and likely improve high adherence and persistence among TGW community.

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### Disclaimer

The findings and conclusions in this article are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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**Table 1:**

Characteristics of interviewed YTGW with experience in sex trade in Bangkok and Pattaya, Thailand (2016–2018)

<b>Socio-demographic Characteristics (N=21)</b>	<b>N (%)</b>
Median age = 24 (Min-Max = 20–26 years)	
Completed education	
Primary/secondary or less	14 (66.7%)
Vocational, bachelor's degree, or higher	7 (33.3%)
Employment status	
Employed only	15 (71.4%)
Student only	1 (4.8%)
Both employed and student	4 (19.0%)
Unemployed, not a student	1 (4.8%)
<b>Sex work experience (N=21)</b>	<b>N (%)</b>
Exchanged/sold sex ≥12 months	14 (66.7%)
Location of sex work/exchange	
Internet only	6 (28.6%)
Venue only	4 (19.0%)
Individual financial support ("Sugar Daddy or Sia-Liang"*) only	1 (4.8%)
Combination (Internet-street-venue based and sugar daddy)	10 (47.6%)
<b>Sexual behaviors (N=21)</b>	<b>N (%)</b>
Generally perform both oral and anal sex	19 (90.5%)
Anal sex position	
Receptive only	15 (71.4%)
Both insertive and receptive	6 (28.6%)
<b>Condom use (N=21)</b>	<b>N (%)</b>
Always use condoms in the past 12 months	13 (61.9%)
Used condom during last anal sex	18 (85.7%)

\* "Sia-Liang" refers in the Thai language to a wealthy man who spends freely on a younger person, generally a woman or a gay man, in return for companionship or sexual intimacy)