SEXUAL PRACTICES AMONG MEN WHO HAVE SEX WITH MEN IN CHIANG MAI, THAILAND: PART OF THE ANTIRETROVIRAL PRE-EXPOSURE PROPHYLAXIS TRIAL

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Abstract. This study aimed to gain a better understanding of the association between participation in a blinded antiretroviral pre-exposure prophylaxis (PrEP) clinical trial and sexual practices among men who have sex with men and transgender women. This study utilized both quantitative and qualitative methodologies. Data included reported PrEP medication adherence and sexual behavior among 114 study participants. Forty-six participants took part in qualitative data collection, 32 were interviewed and 14 participated in one of three focus group discussions. The average percentage of study medication adherence, number of sex partners and rates of sex without a condom were calculated. For qualitative data, content analysis was used to identify repeated normative themes, some of which arose spontaneously from interview interactions. Participants at the Chiang Mai site reported good adherence to the study medication. The sexual risk behavior of these participants had decreased by their final study visit; this was unrelated to level of adherence. Qualitative findings describe sexual practices that were highly contextual; participants used risk assessments to determine sex practices. Condoms were used with casual partners but not necessarily with primary partners. Our findings suggest that while PrEP is an exciting new development for HIV prevention, it must be paired with behavioral interventions to fully address sexual risk among this population. Interventions should provide this population with skills to negotiate condom use with their primary partners as well as in situations in which their sexual partners do not support condom use.

Keywords: sexual practices, PrEP trial, MSM, Thailand

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INTRODUCTION

Pre-exposure prophylaxis (PrEP) is an HIV prevention strategy and uses antiretroviral drugs to prevent HIV infection. In 2010, the Center for AIDS Pro-

gram Research in South Africa, CAPRISA 004 and the Pre-exposure Prophylaxis Initiative Study(iPrEx) evaluated PrEP (Grant *et al*, 2010). The CAPRISA 004 Study found using 1% tenofovir vaginal gel, a nucleotide reverse transcriptase inhibitor, reduced the risk of contracting HIV infection by 39% among participants overall and by 54% among participants with more than 80% adherence (Karim *et al*, 2010). The iPrEx Study found a once-daily regimen of oral tenofovir/emtricitabine (trade name Truvada) gave 44% protection against HIV among men who have sex with men (MSM) as part of a comprehensive package of preventive services (risk reduction counseling, condoms, and management of sexually transmitted infections). Of those with ≥90% adherence the protection increased to 73% (Grant *et al*, 2010).

Two additional studies, the Partners PrEP and TDF2 studies, also found PrEP to be an effective HIV-prevention strategy. The Partners PrEP Study found a 75% reduction in risk of contracting HIV infection when using oral tenofovir/emtricitabine (Baeten *et al*, 2012) and the TDF2 Study showed a 62% reduction with tenofovir/emtricitabine (Thigpen *et al*, 2012). However, there is little data regarding the effect of PrEP on risky sexual behavior.

The iPrEx Study investigating the efficacy of oral tenofovir/emtricitabine as PrEP against HIV infection and was conducted during June 2007 – February 2011. The study covered 11 sites from 6 countries (United States, Brazil, Ecuador, Peru, South Africa and Thailand). iPrEx participants were males at birth, aged ≥ 18 years, HIV-negative and considered at high risk for contracting HIV (Grant *et al*, 2010). The iPrEx study received financial support from the Division of Acquired Immunodeficiency Syndrome (DAIDS), National Institute of Allergy and Infectious Diseases, National Institutes of Health, and the Bill and Melinda Gates Foundation. Study drugs were donated by Gilead Sciences.

In Thailand, the Piman Clinic, operated by the Research Institute for Health Science, Chiang Mai University, offers HIV testing, counseling and basic treatment to various gender identities including gay men, male to female transgendered people (TG) and other MSM. The iPrEx Study in Thailand was conducted at the Piman Clinic. All iPrEx participants were counseled that their study medication might be placebo or an active drug having no proven benefit. Grant *et al* (2010) describes the iPrEx and its inclusion criteria.

A qualitative study among iPrEx participants in Chiang Mai was conducted to examine how participation in the blinded PrEP trial affected sexual behavior in Thailand.

MATERIALS AND METHODS

We analyzed medication adherence and sexual behavior from the parent study for all enrolled iPrEx participants to determine the average adherence throughout the study and change in sexual risk-taking behavior by comparing the initial screening with the final study visit. Subjects were enrolled within 28 days of initial screening. Information regarding sexual risk-taking behavior was obtained using a computer assisted self-administered interview (CASI). We used pill counts to determine adherence to the medication regimen. The clinic still performed the pill counts, monthly study bottle counts and remaining tablet counts.

Participants following up at their 12-40 week visits were invited to participate in the qualitative study. Researchers

consulted clinical staff to determine which participants to invite to take part in the qualitative study. Participants were invited to participate based on willingness to discuss study medication use, study participation and sexual behavior; they were asked to take part in an in-depth interview or a focus group discussion. All participants asked to participate in the qualitative study agreed. The qualitative study took place between September 2009 and May 2010.

Thirty-two participants were interviewed and 14 participated in one of 3 focus group discussions. Each in-depth interview was about one hour long, focus group discussions lasted 60-90 minutes. All interviews and focus groups were conducted in Thai or the northern Thai dialect by trained research staff not involved in clinical care. All discussions were recorded. Research assistants took field notes and made observations during the focus group discussions. All recordings were transcribed into Thai with participant names redacted.

We used a semi-structured guide to explore study experiences and how study participation and PrEP affected sexual risk taking behavior. We conducted the interviews in a relaxed, private environment outside the clinic to facilitate trust between interviewers and participants, and in the case of focus groups, amongst the participants.

Data analysis

Quantitative data were analysed using Microsoft Excel. The average study medication adherence rate was calculated based on the data for each participant. Medication adherence rates were averaged for all the available assessments. Visits with missing or indeterminate data were excluded from analysis, including periods of study medication interruption. Change in sexual risk behavior was based on: the number of male sex partners and incidents of sex without a condom. Sex included insertive anal sex, receptive anal sex, and vaginal sex. The data were for the three month period prior to enrolment and the three month period prior to the final study visit. Quantitative data were obtained from the parent study. Sexual risk data were obtained from the CASI questionnaire which utilized a skip pattern. Not all questions were answered by all participants due to the skip pattern. Participants who did not report having insertive anal, receptive anal or vaginal sex were not prompted by the CASI questionnaire to answer questions related to condomless events involving these sex acts. For details regarding the methodology used to obtained the quantitative data please see Grant *et al* (2010). Sexual risk variables were assessed to determine if the number of male sex partners or sex acts without a condom decreased, remained unchanged or increased. Three participants with missing data about sexual risk behavior were excluded from our analysis.

In-depth interviews and focus group discussion transcripts and field notes were evaluated and reviewed at least twice by the whole team. Pre-specified theme identification was used and followed interview guides. Content analysis was used to identify repeated normative themes, some of which arose spontaneously from interviews and some in response to open-ended questioning. The main themes obtained in the interviews and focus group discussion relevant to study participation and sexual risk taking were identified and quotes were recorded and translated into English for presentation purposes. All the main themes were dis-

cussed by the team until no further themes were identified. Four case studies were chosen to represent the varied reactions of participants to study participation.

Ethical considerations

This study received ethical approval from Chiang Mai University, Thailand, and the University of California Committee on Human Research in San Francisco, USA. Participants gave informed consent prior to being included in the study. All recordings were made with permission. Strict confidentiality was maintained throughout the process; researchers avoided using names when possible and no names were transcribed. Participants received compensation to cover the cost of transportation and their time. Identifying information in the case studies was changed to protect participant identity.

In this study, a transgender woman (TG) was defined as a person who was born as a man, but lives, acts, and dresses as a woman and/or has had surgery to create a vagina. As stated by Jackson (2003), the term *kathoey* in Thai usage in former times implied a man who saw himself more as a woman, and often dressed to varying degrees as a woman. Today it mostly refers to a man who has feminine social behaviors, without specific reference to sexual behavior. The term *kathoey* has been used for at least the last several decades to describe a feminine male person who is sexually attracted to men. Therefore, this term covers a range of effeminate homosexuals who behave like a woman but are not a woman.

RESULTS

Participant characteristics

One hundred fourteen participants aged 18-43 years from the iPrEx study were included in this study. All participants were from northern Thailand. Fifty-one point eight percent of participants were enrolled students in universities or colleges, while the remainder were working or seeking employment. Of the 114 participants, 72 identified themselves as gay, 29 as TG (though only one had sexual reassignment surgery) and 13 as bisexual. Among the 32 interviewed participants, 23 identified themselves as gay and 9 as TG. Of those 14 who participated in focus groups, 6 identified themselves as gay and 8 as TG. About half (22) of qualitative participants were also students.

Table 1
Study medication adherence among participants (N=114).

Adherence level	No. (%)
Good (90-100%)	78 (68.4)
Moderate (70-89%)	31 (27.2)
Poor (70%)	5 (4.4)

Study medication adherence and sexual risk behavior

Study medication adherence was classified as good (≥90% adherence), moderate (70-89% adherence) or poor (<70% adherence) reported adherence (Tangmunkongvorakul *et al*, 2013). In our study, 64.8% reported good adherence, 27.2% reported moderate adherence and 4.4% reported poor adherence (Table 1).

Reported change in sex partners based on study medication adherence is shown in Table 2. Few participants reported an increase in the number of male sex partners between the initial and final evaluations.

The majority of participants reported a decrease in the number of sex acts without a condom (Table 3). Most participants who had good or moderate levels of

Table 2
Change in the number of male sex partners between the initial and final evaluations by level of adherence to the study medication (*N*=114).

No. of partners	Adherence to study medication			Total
	Good	Moderate	Poor	
Decrease	52 (66.7%)	21 (67.7%)	4 (80.0%)	77
Unchanged	11 (14.1%)	7 (22.6%)	0	18
Increase	13 (16.7%)	2 (6.5%)	1 (20.0%)	16
No data	2 (2.5%)	1 (3.2%)	0	3
Total	78	31	5	114

Table 3
Change in the number of sex acts without a condom between the initial and final evaluations by level of adherence to the study medication (*N*=114).

No. of sex acts without a condom	Adherence to study medication			Total
	Good	Moderate	Poor	
Decrease	61 (78.2%)	24 (77.4%)	3 (60.0%)	88
Unchanged	15 (19.2%)	6 (19.4%)	1 (20.0%)	22
Increase	0	0	1 (20.0%)	1
No data	2 (2.6%)	1 (3.2%)	0	3
Total	78	31	5	114

medication adherence were more likely to have a decrease in the rate of sexual acts without a condom or did not report an increase. Only one participant who had poor level of medication adherence reported an increase in the number in the sexual acts without a condom.

Sexual lifestyles

The findings of the in-depth interviews and focus group discussions provide insight into the sexual practices among participants. Although most participants stated an intention to reduce their risk-taking behaviors as a result of being in the study, especially in regards to condom use, they did not use condoms all the time. Instead, many spoke of how they maintained the same sexual lifestyle that they had prior to the study.

> I normally carry one condom in my pocket, but if I have sex more than once while I am out, I would just let it go. If I stay overnight with someone, who knows…anything can happen. I am more aware about HIV after joining the study. Still, my condom use is around 80%. Sometimes when I'm drunk… Sometimes it's just about the situation, I'm in the heat of the moment and I don't have a condom with me (Dan, gay, age 19, student, in-depth interview).

> Normally, I don't use condoms. I've had 88 guys now. I keep records on the guys I've had; who they are, where they are from, and where we first met. Only 6-7 guys out of 88 used condoms with me; they were prepared and brought the condoms themselves. Other guys just didn't want to use condoms. I used to ask some of those guys to wear one, but they just didn't want to… neither did I. (Tanya, TG, age 22, student, focus group discussion).

These examples illustrate how participants felt they were at the mercy of their circumstances, which included the preference of their sexual partners, alcohol use and their own desires. Participants did not feel able to change their circumstances in regards to condom use.

For some participants, sexual risk taking is related to the nature of the relationship. For some, condoms were used more for casual partners, and less for regular partners.

> Before joining the study, I thought that it wasn't that easy to get infected (with HIV), but now I know that if I slip up just once, it means giving away my whole life. Now, I use condoms about 90% (of the time). I mostly use condoms with casual partners, but with someone I love...my boyfriend…It's impossible to stick to 100% condom use (Kop, TG, age 22, working, in-depth interview).

> I use condoms about 90% of the time now…mostly I use them with casual partners, but I don't used them with my boyfriend. Still, I feel afraid of getting infected and want to use condoms every time I have sex…but I'm afraid that my boyfriend would think that I don't trust him. I don't know what he would think if I asked him to use a condom (Tana, gay, age 22, working, in-depth interview).

> I have used condoms about 70% of the time since joining the study. I don't use condoms with my boyfriend or with guys who are my type - someone who looks good… I used to give the condoms that I got from the study to my boyfriend, but he threw them away. He said it's not natural (to have sex) with a condom; it's not sensual. Sometimes, I feel pain when using condoms too (Matoom, TG, age 25, working, in-depth interview).

While participants understood the factors related to transmission and risk, condom use often was decided by relationship dynamics with their primary partners and a strong desire to have sex regardless of risk. Four case studies are presented to further illustrate these issues among the diverse group of participants in this study.

Cases

The following cases were chosen from the in-depth interviews to represent the different compromises made when negotiating condom use, the normative themes or concepts found repeatedly in the interviews and the some socio-cultural perspectives of the participants in this study.

Kwang: "Thinking back on it, I was so lucky to not be infected."

Kwang self-identifies as a transgender woman (*kathoey)* who prefers feminine dress. The female pronouns "she" and "her" are preferred by Kwang. She is in her mid-twenties and is originally from a district just outside Chiang Mai City. Her parents are divorced and she lives with her father helping to run the family business; she also helps to take care of her two younger sisters. Her family accepts her *kathoey* gender identity and are aware of her participation in the iPrEx study.

The interview took place at the Jackal Bar, a well-known *kathoe*y bar in Chiang Mai. Kwang worked for the bar for a couple of years, but recently quit because the job required her to drink alcohol with customers and go home late, which often resulted in traffic accidents. She still comes to the bar to help out from time to time.

At the time of the interview, Kwang was in her 24th week of participation in the study. She states her study medication adherence is about 86%. Currently, Kwang is dating a Swiss man whom she got to know through the internet. They have a long distance relationship but keep in contact daily through the internet and phone calls. They are able to get together once or twice a year during her boyfriend's long holidays. "My boyfriend is handsome and faithful. However, we sometimes argue during internet chats and he even cries," Kwang added.

Kwang also has casual partners but does not consider them serious relationships. She also meets them through the internet. Lately, Kwang has been chatting with some foreigners who plan to visit Chiang Mai. "I'm scheduled to meet an Italian guy next Wednesday and a week after that there's another guy coming," she confided.

When it comes to sex, she only uses condoms for her casual partners. With regards to her boyfriend, "he visits for three weeks and we are together most of the time, so we don't really need to use condoms." While condoms are used mostly for insertive anal sex, there are occasions when she uses it for oral sex as well.

> Condoms are mainly used when it's time to insert. It's only when I know I have an open wound in my mouth or I feel something is not quite right about the guy that I use a condom for oral sex.

Kwang occasionally does not use condoms. "It happens when I'm drunk or sometimes when I'm with a handsome guy… It's just not arousing to use a condom." Kwang doesn't feel that her sexual lifestyle has changed much since enrolling in the study. Her frequency of condom use and number of casual partners are about the same, although she admits to having more awareness after joining the study. "Sometimes when I fail to use condoms, I feel scared and ask myself; 'How could I do that?'" she said. She reflects on the risks she took as a teenager:

> When I was 16, I often had unprotected sex. Once during the *Songkran* festival I had sex with a guy in a public toilet. I just washed my thing after we finished and soon after that I got another guy. Thinking back on it, I was so lucky to not get infected. Lately I have tried to reduce the risks. I've grown up too. I saw many of my friends die of HIV …I witnessed their suffering. It's painful.

Kwang believes the drug could prevent HIV transmission, but she does not rely on the study medication for protection, "I'm not sure about the effectiveness of the pills…I have no idea whether I have the active pills or the placebo."

Wan: "If one of us asks to use condoms, it means something is suspicious."

Wan is a senior at university. He normally spends his days studying and hanging out with friends. Wan is originally from a district near Chiang Mai City. At the time of the interview, he lived alone in a rented room not far from the university.

He explains how conflict in his relationship prompted him to get tested at the study clinic, "I fought with my boyfriend. He threw me down and challenged me to have a blood test, so I just wanted to prove it." He was interviewed during his

18th week of participation in the study and on average he had good medication adherence (94%). Wan believes he is taking a placebo.

Just a few of his close friends and his sex partners know about Wan's sexual identity and his participation in the study. Nobody in his family knows that he is gay, "I will tell them one day when I get a job or have a more secure life, but not now. I'm still depending on my family financially."

Wan does not feel his sex life has changed due to participation in the study. At the moment, he has a regular boyfriend who is 6 years older than him and they have been together for 4 years, on and off. "We argue a lot over little stupid things" he said. Wan could be described as polyamorous in regard to his approach to relationships. He meets casual partners through the internet. At the time of the interview he said he was having a relationship with two guys. "It's a three-way relationship, the two guys were seeing each other and I just happened to get involved… It's too difficult now. I'm going to leave this relationship soon". However, Wan does not consider himself a "one-night-stand" person. He goes on dates and spends time getting to know his partners; "I go jogging and have dinner with guys. I'm rarely focused on sex. It's more than that. It's about intimacy and love." He has multiple partners because of his belief in destiny:

> I often go to the fortune-teller. I believe that I have met different true loves in my past lives. My lovers may be reborn in this present lifetime, so perhaps I'm destined to meet more than one true love in this life.

Wan believes his risk for sexually transmitted infections (STI) is low, "I now have a blood test and physical exam every month, plus I trust my boyfriend since we have been together for 4 years." He admits that he never uses condoms with his boyfriend:

> I trust him. He is old enough, well… he seems to have no one else…We've never once used a condom…And if one of us were to ask to use a condom, it means something…suspicious, that one of us may have had sex with somebody else. But for the casual partners…I don't know whether they have somebody else or not. So, I would use condoms almost every time.

Pleng: "I've never had a one-night-stand …I'm a faithful person."

Pleng considers himself an effeminate gay man. Pleng comes from a farming family in a neighboring province. He does not speculate whether he is taking an active drug or a placebo.

In his hometown, Pleng went to school, participated in school activities, and then went straight home. After moving to Chiang Mai he was exposed to many new things. He is living by himself and he considers himself an adult, although his parents don't consider him as such, "I am now grown up and I take responsibility for myself." He takes care of himself, works out nearly every day, and avoids making his family worry. Pleng does not directly talk about being gay to his family; however, "I think my parents already know because I've been with them for 19 years. They should have noticed something."

He was in his 28th week of participation in the study when interviewed; he reports good adherence with the study medication throughout his time in the study (an average of 99%). Pleng broke up with his boyfriend a few months before the interview; "This guy was my first love.

It was a hard time for me." They dated for a year, lived together for five months and then broke up because Pleng could no longer handle his boyfriend's unfaithfulness. He spent a week in agony but through the support of his friends, he said he "got over it". "My friends said after I had gone through this first-love-experience, I would change into a new person, and I really did," he said.

Originally, Pleng felt he had a conservative outlook on sex, considering it "dirty" and never daring to talk about it. He now feels sex is something natural and he can talk about it openly, mostly with his friends. He learned about safer sex through the study. He tries to protect himself by having one partner at a time and by using condoms. "I've never had a one-night-stand. I've never gotten drunk; I am a faithful person," he said.

Pleng uses protection during "important activities." He does not use condoms for oral sex explaining, "using a condom when having oral sex is disgusting. It's unusual…Kissing or oral sex has a much lower chance of getting HIV, compared to sexual intercourse."

Currently he uses condoms every time he has insertive sex, although this was not originally the case; "I sometimes failed to protect myself because I trusted (my boyfriend). Sometimes he would ask me not to use a condom. I don't know why. And for me, I was sure I had no one else." Pleng has a new guy and confirms, "We use protection every time. This is serious for me. We don't know each other that much… I have to save myself. I don't want to die soon. I want to spend my life saving money and building a new house for my parents."

Chai: "I always feel nervous waiting for my HIV test result."

Chai came to his interview in an oversized jacket, shorts, flip-flops; he has messy hair and looks drowsy. "I just got out of the internet booth," he explained, "Yesterday, I went to bed around 5 PM, woke up at 11 PM and headed straight to the internet booth to play games until morning." Chai is originally from a neighboring province, a three-hour drive by car. He is a college student, and plays in the college Thai traditional music club.

Chai mostly socializes with his friends from a music club and through the internet. Only his mother and some of his close friends know that he is in the study:

> My dad passed away. My mom knows about my participation in the study, but I never talk about my sexual identity to my mom directly. I think she may somehow know it already…I told friends in the music club about it and invited some of them to join. I don't see joining the Piman Center as shameful. I get health check-ups and blood tests every month. I dare to speak up about this. It's better than someone else who doesn't dare to face the blood test.

Chai has been with the study for 28 weeks, and his study medication adherence has been moderate (86%). He believes he's receiving the active drug:

> I was diagnosed with syphilis and got treatment. After I took the study medication, the germs must have decreased. I often have unprotected sex, but I have never had any other STIs. I am still HIV negative.

Currently he is seeing a guy in Bangkok. They have never had sex since they live in separate cities. However, Chai often has casual sex with people he meets in chat rooms. Chai prefers being a top (insertive partner), but he is physically smaller than other guys, and is often

pushed to be a bottom (receptive partner). He explains why he has unprotected sex:

> Normally, I have sex with guys who I've been talking to for a while. We talk about whether we would have it fresh or protected. Sometimes, we show each other our blood test and agree to have it unprotected. Well, it mostly ends up being fresh... It's more fun... it's just a matter of pleasure. But after unprotected sex, there's a panic. Every month during my clinic visit, I always feel nervous waiting for my HIV test result.

Chai mentioned that his sex life is still the same now as it was when he first enrolled. As a bottom having unprotected sex, he knows he's at risk for STIs, "I've learned that there is a higher chance of HIV transmission for the receptive person than for the insertive person." He intends to reduce his risk since learning from clinic staff that the number of HIV-infected MSM in Chiang Mai has increased.

DISCUSSION

The quantitative data in our study indicate most of the participants in this study had good adherence with the study medication. The data also show sexual risk behavior was lower at the end of the study than the beginning but this was unrelated to level of medication adherence. With the data regarding sexual risk behavior, the trend appeared to be a reduction in the number of sexual partners and condomless events.

This reduction in risk behavior may be due to several factors. As part of this study, participants received a comprehensive package of services aimed at educating them and assisting them in adopting HIV risk-reduction strategies. Grant *et al* (2010) theorized the act of taking a pill daily coupled, the risk-reduction counselling and other services could serve as a frequent reminder of their risk for contracting HIV. Not knowing whether they were receiving active drug or a placebo could have influenced their risk taking behavior. They could not rely on receiving the protection of an active drug and they were counselled the active drug was experimental and did not have proven benefits. Most participants in this study acknowledged their intention to decrease their HIV risk, by using condoms and reducing the number of sexual partners. However, participants may have exaggerated their intentions to reduce their risk due to perceived social expectations. The qualitative data contains several mentions of risk reduction related to condom use, but few participants showed strong motivation or inclination to limit their number of sexual partners.

While the quantitative data examined in this paper only considered reported sexual activity during the three months prior to initial screening and the three months prior to the final study visit, it is likely there was some fluctuation in sexual risk taking between these time points, which is suggested by the qualitative data. Given the small sample size and that data is self-reported, no strong conclusions can be drawn. However, the qualitative data provides insight into the factors that influence this fluctuation and why some participants reduce sexual risk while others report no change.

The case studies presented in this paper highlight the plurality of sexual lifestyles represented in this MSM population. These lifestyles run the spectrum from monogamous relationships in which condoms are always used to relations with multiple partners in which condom use is weighed against varying factors related to

each partner. Many participants actively acknowledged the information gained through the study regarding risk for HIV and other STIs. A few, such as Pleng, changed their sexual practices to engage in safer sex while others openly acknowledged no change in their behaviors.

A previous study found people made choices based on their perceived risk and that risk may be minimized but not eliminated entirely (Ridge *et al*, 2007). Participants in our study used their own risk assessment when deciding whether to engage in sexual risk behavior. Their decisions were based on perceived risk related to the type of sex, type of relationship and circumstances surrounding sex.

Oral sex was generally regarded as having a lower risk for contracting on STI than anal sex, consequently condoms were not typically used. Kwang mentioned that the only circumstances which would prompt her to use a condom to have oral sex would be if she had an abrasion in her mouth – increasing the potential for infection – or she suspected that her partner had an infection based upon inspection of his penis.

The nature of the relationship, whether sex was with a casual or primary partner, also determined the likelihood of using condoms. Sex with a primary partner was considered safe, or there was an expectation within the relationship that it should be considered safe; therefore, regular condom use in this type of relationship was the exception rather than the rule. Participants were much more likely to use condoms with casual partners. Forgoing condoms with their primary partners was related to trust in the relationship; trust in their partner or their partner's trust in them and feeling empowered to require condoms during sex and fears of how their partner would react if a condom was suggested. Protection against risk is instinctively easier when a partner is a stranger since issues of relationship trust are not a factor (Joffe, 1997; Adam *et al*, 2005).

Power dynamics in relationships also influences condom use (Adam, 2000; Adam *et al*, 2005). Wan's primary partner was six years older than him, and because of his age, Wan believes his partner to be mature, safe, and faithful. During their 4 years together they had never used condoms. However, even if Wan did want to use condoms, using condoms would be an admission of infidelity; by not using condoms they maintained the illusion they were in a monogamous relationship.

While having extra-relationship sex seemed the norm for many participants, casual sex partners were not acknowledged to the primary sex partner. Several participants believed their partners to be faithful while admitting their own infidelity. There was an implicit suggestion that so long as their primary partners were faithful, they themselves did not need to be faithful and condoms could be disregarded. Adam *et al* (2005) found similar attitudes and reported condom use decision-making in couples often becomes caught up in presumptions and expectations about monogamy, since monogamy is socially expected in serious relationships. Consequently, monogamy, whether real or fabricated, generates a relationship dynamic that discourages condom use that creates new opportunities for HIV transmission.

Circumstantial factors related to condom use with casual partners included intoxication, availability of condoms – whether the participant had any or if their partners provided/requested them – level

of sexual arousal, perceived health status and pleasure. Condoms were repeatedly mentioned as obstructing passion and arousal. Chai's case study illustrates how sex without a condom can be actively negotiated among casual sex partners. Displaying recent negative HIV test results can momentarily assuage each person's fears of contracting HIV. However, Chai's nervousness while awaiting his monthly HIV test result belies any confidence he feels in the heat of the moment when having unprotected sex.

Participants mentioned the level of attractiveness of a partner and enjoyment of having "fresh" sex as reasons for having unprotected sex with casual partners. Kwang's experience shows how her partners' physical appearance was a key factor in assessing risk. If they were particularly good looking and appeared clean, she would have unprotected sex. Similar to Chai, she too felt anxiety over the sexual risks she took despite her rationalizing them.

Empowerment was also a factor, as some participants wanted to use condoms, but their requests were ignored by their partners. For instance, while Pleng wanted to use a condom with his ex-boyfriend, their relationship dynamic established a sexual relationship in which condomless sex was a sign of trust. It wasn't until Pleng had a new boyfriend that he felt empowered enough to request regular condom use. Being able to establish condom use at the very start of the relationship made regular condom use possible.

Participants were varied in their assessment of their study arm, its effect on their behavior and perceived protectiveness. Both Kwang and Pleng did not speculate whether they were taking an active drug or placebo. Kwang admitted that her risk behaviors remain unchanged, while Pleng began using condoms regularly. Wan believed he was receiving a placebo and did not change his behavior. Only Chai was convinced he was taking an active drug since he did not test positive for HIV or other STIs. His behavior also remained unchanged.

In general, qualitative participants did not actively speculate on how study medication adherence affected sexual risk taking or vice versa, but risk compensation did not seem to be a factor in this study. It is worth noting study medication adherence and sexual risk taking likely mutually influenced one another. Higher adherence rates could bring about greater risk taking and greater sexual risk taking might motivate greater adherence to study medication.

Ridge *et al* (2007) noted negotiation of safe sex requires a specialized body of skills and knowledge. Negotiation of sex is a complex social interaction where individual and partner dynamics need to be taken into account, along with the specifics of the circumstance. Accordingly, Pleng's case study highlights that safer sex is a mutual decision. It is based on striking a balance between knowledge, relationship-building and pleasure.

The internet was mentioned several times by participants as a means for locating potential partners, keeping in touch with them, and scheduling sex. Online partners can be selected and sexual practices can be negotiated beforehand. This highlights the strong role the internet plays in the lives of this population, whether it is used simply for gaming or as a tool for facilitating their sexual encounters. Further study exploring the influence of the internet on this population and how it can be used for

prevention efforts would be worthwhile.

The high level of study medication adherence seen in this population coupled with the implication for reduced sexual risk-taking is noteworthy in the blinded PrEP trial. These findings suggest that participants in such a trial are more likely to maintain the same level of risk or to decrease their risk. It is important to note that to date, no study has shown an increase in risk behaviors among gay men taking PrEP (Grant *et al*, 2010; Grohskopf *et al*, 2010). As the effectiveness of PrEP continues to be demonstrated (Grant *et al*, 2010; Baeten *et al*, 2012; Thigpen *et al*, 2012) further study is needed to understand whether participation in an open-label study will affect risk-taking behavior, particularly since these findings cannot be generalized to "real life" contexts and may be limited to the unique circumstances involved in study participation in Chiang Mai.

The factors related to sexual risk decision making among MSM in northern Thailand are complex and while PrEP-use provides a promising alternative to reduce risk for HIV acquisition, reliance on PrEP alone is not enough. Any intervention involving PrEP must be paired with behavioral interventions that provide this population with skills to negotiate condom use with their primary partners as well as in situations in which their sexual partners do not support condom use. Additional studies would also benefit from directly studying the impact, if any, of risk compensation and prevention misconception on sexual risk taking.

The study's main limitation was its reliance on reported adherence by pill counts rather than using biological markers. While pill counts are reliant on the participant's comfort with reporting missed doses as well as their remembering to bring in unused medication to study visits, clinic staff made every effort to remind participants to bring in their pills and to assure them that they would not be judged by their adherence. The intrinsic sensitivity of research on such a personal topic may have affected sexual risk data and information collected during interviews and focus groups. The study minimized this by using a team of trained investigators who were known to relate well to the study population. Recruiting participants who felt comfortable discussing their study medication behaviors may introduce participant bias. Finally, the small sample size and the limited data regarding sex without a condom was another limitation in our study.

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