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An examination of gay couples' motivations to use (or forego) pre-exposure prophylaxis expressed during couples HIV testing and counseling (CHTC) sessions

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Abstract

While many gay couples perceive themselves to have little risk for HIV transmission, research estimates that 35–68% of new HIV infections are transmitted within main partnerships. Pre-exposure prophylaxis (PrEP) is recommended for those partnered gay and bisexual men (GBM) who engage in sex outside their primary relationship or who have an HIV-positive partner. There is reason to believe that a couples' sero-status and sexual agreement will shape perceptions of PrEP's personal relevance among gay couples. The current study examined motivations for and ambivalence towards PrEP uptake reported in a sample of 67 gay couples during completion of a brief CDC-recommended prevention intervention: Couples HIV Testing and Counseling. Findings suggest that all types of couples identified some circumstances in which they would consider PrEP; however, PrEP messaging should be crafted to avoid undermining current prevention strategies or threatening the trust and legitimacy of the relationship.

Keywords

Pre-exposure prophylaxis; Men who have sex with men; Same-sex Couples; HIV-prevention; Sexual Agreement; Sero-status

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INTRODUCTION

In 2015, gay, bisexual and other men who have sex with men accounted for 67% of new HIV infections and rates were highest among those 20–29 years old (Centers for Disease Control and Prevention, 2015b). The period of emerging adulthood overlaps with this vulnerable age range. In the U.S., this period is often characterized by exploration of identity, occupational goals, and social relationships – including romantic relationships (Arnett, 2015). It is therefore perhaps not surprising that – while main partners are estimated to account for 35–68% of new HIV infections among GBM and other men who have sex with men (Goodreau et al., 2012; Sullivan, Salazar, Buchbinder, & Sanchez, 2009) –stimates suggest as many as 79% of HIV infections among GBM aged 18 to 24 are contracted from a main partner (Sullivan et al., 2009).

In order to combat high rates of HIV infection, recent advances in medical research have introduced new prevention strategies for individuals who are at a risk for HIV exposure. In 2012, Pre-Exposure Prophylaxis (PrEP), a once a day pill of TRUVADA (Tenofovir disoproxil/emtricitabine), was approved by the Federal Food and Drug Administration (FDA) for use among HIV negative individuals to prevent HIV transmission (U.S. Food and Drug Administration, 2012). PrEP reduces HIV transmission risk by up to 92% when taken consistently (Centers for Disease Control and Prevention, 2017).

The salience of gay couples as a context for HIV transmission risk is evident in CDC's PrEP guidelines, which specifically emphasize targeting PrEP to men in sero-discordant and non-monogamous relationships (Centers for Disease Control and Prevention, 2015a). Condomless anal sex (CAS) among discordant couples presents a risk of HIV transmission to the negative partner. This risk increases if the HIV-positive partner's viral load is detectable or assumes the insertive role during anal intercourse (e.g., Hallett, Smit, Garnett, & De Wolf, 2011; Parsons et al., 2005). The explicit mention of non-monogamy is consistent with a growing body of literature that illustrates the importance of sexual agreements within gay couples (e.g., Hoff & Beougher, 2010). Sexual agreements define the sexual boundaries of a relationship and what sexual behaviors are permitted within and outside of the relationship. While the formation of these agreements may be motivated in part by a desire to establish trust and strengthen the relationship, evidence suggests that agreements are also a mechanism gay couples use to manage HIV risk (Hoff & Beougher, 2010; Hoff, Beougher, Chakravarty, Darbes, & Neilands, 2010).

In response to the need for couples' HIV prevention services, couples HIV testing and counseling (CHTC) has been adapted for use with gay couples. During CHTC, the couple discusses their current HIV prevention strategy (and related concerns) and their sexual agreement. They learn their HIV status, and then discuss an ongoing prevention plan. Initial clinical trials indicate the intervention is safe and acceptable (Sullivan et al., 2014). In response, both CDC and the World Health Organization (WHO) have issued guidance on implementation (Stephenson, Grabbe, Sidibe, McWilliams, & Sullivan, 2016; WHO, 2012) making it a standard of care for partnered gay men. Given its status, it is particularly useful to understand how discussions of PrEP emerge in the context of this intervention.

PrEP messages tailored for GBM generally may fail to address the motivations for and barriers to PrEP experienced by partnered GBM. There is substantial reason to believe that motivations for PrEP uptake may be linked to couples' HIV status. Sero-discordant couples face the ongoing explicit possibility of HIV transmission to the negative partner regardless of their sexual agreement. Sero-discordant couples may also utilize prevention strategies which are not relevant for concordant HIV-negative couples, such as Treatment as Prevention (TasP) (Centers for Disease Control and Prevention, 2015c) or sero-positioning (Parsons et al., 2005).

Among sero-concordant HIV-negative couples, evidence suggests perceptions of HIV risk and PrEP vary with sexual agreements. Gay men in monogamous relationships perceive themselves to be at lower risk of HIV infection (Stephenson, White, Darbes, Hoff, & Sullivan, 2015). Sexual agreements also predict GBM's perception of their partners' need for HIV prevention. GBM in monogamous relationships perceive PrEP use to be less important for their partner compared to men in non-monogamous relationships (John, Starks, Rendina, Grov, & Parsons, 2018). Monogamous GBM report concerns that discussing PrEP will cause their partners to become concerned about agreement violations (Mimiaga, Closson, Kothary, & Mitty, 2014). In contrast, non-monogamous GBM generally experienced a partner's PrEP use as providing social support for their own PrEP uptake and adherence (Mimiaga et al., 2014).

Both CDC guidance and existing research suggest the need to examine distinct PrEP motivations among sero-discordant couples, monogamous HIV-negative couples, and non-monogamous HIV-negative couples to maximize the applicability of findings for critical populations. CHTC provides an ideal context for addressing PrEP uptake with couples; however, no research has specifically examined how couples discuss PrEP in the context of this established HIV prevention approach. As such, the current study sought to identify themes related to PrEP motivation and barriers identified by emerging-adult gay couples during CHTC.

METHODS

Participants and procedures

Data were derived from the *We Test* study, a randomized controlled trial (RCT) assessing the feasibility, acceptability, and preliminary efficacy of adjunct components of CHTC. Eligible participants were recruited through a variety of online and outreach based methods between January 2016 and August 2017. Online recruitment efforts included the distribution of study information via listservs and websites targeting GBM. Outreach strategies included attendance by study staff at community and social events frequented by GBM in the New York City area. To meet eligibility criteria, couples were required to report being sexually active together (including oral or anal sex) in the 3-months prior to screening and a relationship length of at least 3 months. Both partners in each couple were at least 18 years of age, indicated a male sex and gender identity, lived in the NYC metropolitan area, and were able to communicate in English. In addition, at least one member of the couple was 18–29, self-reported a negative or unknown HIV status, and reported the recent use of illicit

substances. Couples were excluded if either member reported the occurrence of severe physical or sexual intimate partner violence.

An index approach to screening was utilized. One member of the couple completed a telephone screener, which gathered demographic and behavioral information about them and their partner to determine preliminary eligibility. Those men who screened preliminarily eligible were asked to schedule a baseline appointment at a time both they and their partners could attend. The baseline appointment consisted of a survey assessment followed by a CHTC session.

All participants, regardless of condition assigned within the RCT completed a CHTC session. Completion of CHTC involves 8-steps: 1.) Introduce CHTC and Obtain Concurrence: an introduction to CHTC process and receiving the couples consent; 2.) Prepare For and Conduct HIV Test: explanation of the HIV test itself and possible results couples could receive, followed by a rapid HIV test; 3.) Explore Couple's Relationship: an exploration of the couple's relationship to build rapport; 4.) Discuss HIV Risk Concerns and Reasons for Seeking CHTC: discussion of current risks, reasons for testing and HIV prevention strategies (i.e. condom use, PrEP use, etc.); 5.) Discuss Couple's Agreement: exploration of the couple's sexual agreement and rules in regards to outside sexual partners; 6.) Provide Results: results are given to each member of the couple at the same time and can be the same (concordant negative or positive) or discordant; 7.) Develop Care, Treatment, and Prevention Plan Based on Result: discussion of future steps regarding HIV transmission risk prevention strategies (i.e. discussion of introducing condoms or PrEP use); and 8.) Link with Follow-up Services: referrals given in light of current HIV test results (i.e. referrals for confirmatory testing and other health services) (Sullivan et al., 2014).

Information about PrEP and related referrals were discussed in Steps 7 and 8 of CHTC with all couples. Information was provided using a free brochure available from CDC's website. Couples were also free to mention PrEP at other points in the session if it was relevant. While all couples were presented PrEP information as a standard procedure, not all couples chose to discuss their attitudes towards PrEP or offer thoughts on why they were or were not interested in it. When the couple opted not to expand on their PrEP-related attitudes and thoughts, motivations for or barriers to PrEP were not specifically probed for in the context of CHTC. Therefore, all of the information provided by couples emerged voluntary.

The adjunct intervention components evaluated in the RCT included a communication skills training video viewed prior to completion of CHTC and a module in which the couple discussed drug use administered between steps 5 and 6 of standard CHTC. Couples' interactions while viewing the communication skills training videos were not recorded, and no PrEP-related content was observed during administration of the drug use module. All content reviewed in these analyses was therefore extracted from steps in the standard CHTC protocol.

Analytic approach

Sessions were reviewed for the presence of PrEP content in the couples' discourse. Conversations concerning PrEP were transcribed verbatim and checked for quality assurance

by study staff. A thematic analysis of the data was conducted by the second author with support from the authorship team, which included identifying initial themes after reviewing the audio recordings and CHTC session transcripts with the first and fourth authors, coding transcripts using a well-defined code book, and extraction and input of quotes into a framework matrix using Microsoft Excel. The framework approach was employed because it affords data transparency and allows for analyses within and between couple's comments in order to compare the major themes across interviews (Spencer et al, 2014). This procedure results in a Microsoft Excel table where couples' quotes are listed in rows and separated by columns associated with each theme identified; this allows narrative to be read across a couple's quotes, but also allows a comparison of quotes down each resulting column theme (i.e., between couples).

As previously described, CDC guidance on PrEP dissemination and available research evidence guided our organization of thematic content into strata defined by the couples HIV-serostatus and sexual agreements among concordant HIV-negative couples. Based on our preliminary analyses, we determined that the narratives of PrEP differed based on the couples' sero-status (serodiscordant versus concordant HIV-negative) and by sexual agreement among concordant HIV-negative couples. We identified themes aligning with current HIV prevention strategies (i.e. condom use, TasP, PrEP, etc.), barriers for PrEP uptake, motivations for PrEP uptake, and structural factors (i.e. insurance difficulties, finding a provider, etc). Based upon the appearance of content in our preliminary analyses, we stratified by relationship HIV-serostatus and (and sexual agreement among concordant HIV-negative couples). Quotes representative of major themes across couples were selected for explanation of varying PrEP attitudes among these three salient groups; sero-discordant couples, concordant HIV negative monogamous couples, and concordant HIV negative non-monogamous couples.

In total, 70 CHTC sessions were conducted. Due to technical difficulties, recordings were available for 67 sessions. We reviewed sessions for all 11 sero-discordant couples and for the first 35 concordant HIV-negative couples in order of enrollment. After review of the first 35 concordant HIV-negative couples' sessions was completed, saturation of the data appeared evident. We therefore randomly sampled 5 of the remaining 21 sessions to test for saturation. No new thematic content was extracted from these additional sessions.

RESULTS

Table 1 contains demographic information for the 134 individuals in the analytic sample. Table 2 contains dyadic demographics. Most couples (70.1%) were comprised of men who were both between the age of 18–29; 62.7% of couples had at least one partner who identified as a racial or ethnic minority, and couples reported being together for an average of 25.86 months ($SD = 24.16$). Among sero-discordant couples, 5 indicated monogamous sexual agreements and 6 indicated non-monogamous agreements during discussions in CHTC.

All couples reported having either anal or oral sex together in the 90 days prior to assessment. Most couples (89.6%) engaged in CAS together. With respect to sex with casual

partners, 22 couples (32.8%) indicated that they had sex with a casual partner together as a couple and 40 individuals in the sample (29.9%) reported having sex with a casual partner without their main partner in the past 90 days. Overall, 35 participants (26.1%) reported at least one instances of CAS with a casual partner in the past 90 days.

As hypothesized, content of couples' positive and negative perceptions of PrEP varied by sero-status (discordant vs. concordant HIV negative). Among HIV negative couples, identified benefits and concerns about PrEP varied by sexual agreement. These differences highlight varying degrees of perceived HIV risk. They also embody PrEP's intersection with other HIV prevention strategies (e.g., sexual positioning, condom use and TasP) and the relevance of relationship commitment and dyadic functioning to PrEP decision making.

Attitudes of Non-Monogamous Concordant Negative Couples

Non-monogamous HIV negative couples who viewed PrEP positively discussed anxiety reduction as a primary motivation for PrEP uptake. These couples characterized PrEP as an additional precautionary measure that reduced HIV risk and related worries.

> "Before I got on PrEP I would always be worried, and it still wouldn't change my condom use…Now like, I'm less of a hypochondriac about things…It gives you a little bit of a peace of mind [being on PrEP]." (12261, P1)

> "Well I had like two HIV scares back to back when I wasn't on it so I had to take PEP and I was like I can't do this anymore." (12256, P1)

These quotes illustrate that one potentially potent source of motivation for PrEP uptake is the reduction of HIV-related worry. These quotes illustrate the general or global nature of these concerns. In contrast, a number of couples described anxiety reduction related to more specific concerns, including sex as a receptive partner and seroconverting during the window period. In these cases, couples characterized PrEP as a supplemental prevention strategy, which addresses potential vulnerabilities arising from the use of condoms alone or routine HIV testing.

> "So the reason why I started taking it… is that when we started like you know seeing other people I would typically be bottoming. You know there are condoms and we're using that, but like, you know, the analogy I use is like you have a car, and then in it are seat belts, we'll call those condoms, and then they have another safety mechanism like air bags, you know it's like additive, right? Um so that's how I perceived it and it made me less anxious around the whole thing when you know we were doing that so that was my main driver." (12022, P2).

> P1: "That does make PrEP seem like a little easier to deal with [the window period], now that I think about it, rather than having to like guess like every time I might've been exposed. P2: Yea it's like the peace of mind aspect of it (12022.)

While PrEP's potential to reduce both global and specific HIV-related anxiety was a motivating factor for non-monogamous couples (as seen in previous quotes), many also expressed concerns PrEP's limitations. As illustrated below, these centered on the continued need for routine condom use even with PrEP uptake because of concerns about other STIs, potential side effects and adherence concerns about PrEP, and financial barriers to uptake.

These following quotes highlight the potential ambivalence couples might experience about PrEP uptake as it simultaneously eases some concerns related to HIV infection, while raising others.

> P2:"And regardless you will still have to use condoms and like—P1:"That's the thing for me it wouldn't be a green light anyway to just for everything else and at that point I might as well just use condoms." (12292)

> "I think if you take PrEP you end up doing raw a lot, and yes, HIV is not- doesn't happen, but a lot of other things happen …" (12141, P2)

> "Like when I start taking this like how long do I…do I have to take this for the rest of my life? Or like what kind of long term effects are there? I mean, are there studies on that, do we have enough info for that yet or?" (12022, P1)

> P1: "It was much more of a financial thing at the moment stopping us from, you know, doing the prep um. P2: Yeah we've talked about it and I have concerns with my…I'm terrible with taking any sort of [medication] P1: We're both really bad at like a time schedule and like we have to do this every day" (12136)

In some instances, non-monogamous couples expressed their concerns about the impact of PrEP in terms of their attitudes about other gay men who are on PrEP. Here concerns about PrEP's inability to prevent STI's other than HIV take the form of assuming that sexual partners who are on PrEP may be more likely to transmit other STI's. This enhanced risk for other STI's then reinforces the personal need for condom use, which in turn diminishes the personal benefits of people on PrEP.

> "…and I kind of feel when I meet someone on PrEP… I feel hesitant because I know that he fucked raw a lot, yea get fucked or fuck whatever it is, and I feel like they might have a lot of other diseases" (12141, P2)

These couples expressed the notion that PrEP use does not serve as a 'free pass' for behavioral disinhibition. Condom use remains relevant for them (i.e., to reduce the risk of other STI's), and the continued need for ongoing condom use therefore diminishes the appeal of PrEP. Taken together, these quotes highlight the complex nature of the relationship between PrEP and other methods of HIV prevention for non-monogamous HIV-negative couples. When viewed from the narrow perspective of HIV prevention, PrEP, in addition to other prevention strategies may result in reductions in HIV related worries. At the same time sexual health viewed broadly, encompasses concerns beyond HIV infection, and from this lens the ongoing need for additional sexual safety strategies reduces PrEP's appeal.

Attitudes of Monogamous Concordant Negative Couples

While CDC guidelines might imply that PrEP is less relevant for those monogamous men in HIV negative concordant relationships, many in the current sample expressed interest in PrEP. Similar to their non-monogamous counterparts, monogamous men saw PrEP as a way to reduce global HIV-related worry. Unique from their non-monogamous counterparts, monogamous men identified PrEP as useful to address relationship uncertainty. Specifically, couples mentioned the possibility of relationship dissolution at some point in the future, evolution in the couple's sexual agreement, or the idea that someone might "slip-up" and

break the sexual agreement. Also unique to monogamous couples was a theme which characterized taking PrEP as a means taking ownership of their health and expressing their responsibility within the larger gay community.

> "…it's not because I think that I am going to go out or that you are going to go out, but I think that PrEP is just a really good idea. It protects you and just in case anything happens. A mistake or a slip up. There shouldn't be, but we are human. And I think that is a good risk reduction strategy." (12501, P1)

> P1: I'm on PrEP… I've gone on PrEP after we started dating, just cause like, HIV's always, scared like, the shit out of me, and like, sex's always scared me. Even before, in my previous, long-term, monogamous relationship I was always scared of sex. Um, and just sorta stripped away the fear for me. P2: We are monogamous at the moment and I'm in the process of trying to acquire PrEP, not because we are like seeking a change to our relationship any time soon, but it's just sort of like my own personal, just be like a grown up little gay boy about it and manage my own safety and not rely on, you know, just my partner and just like placing that like, hope and like…expectations on somebody else… P2: "Well also we don't know if like, how like, long our relationship is gonna last and you know, if something were to happen I would just wanna be on PrEP as a responsible queer person." (12236)

While some monogamous couples identified compelling reasons to consider PrEP, others indicated reservations it. Much of the concern expressed by monogamous couples mirrored concerns expressed by non-monogamous couples. Monogamous couples were particularly likely to express these concerns in terms of their observations of others in the gay community. These included concerns about behavioral disinhibition, the risk of other STI's outside of HIV infection, and the need for other the employment of concurrent prevention strategies.

> "I don't understand why people take PrEP and then think it's like a free pass. Uh (pause) There's like other things usually, other diseases" (12096, P1)

> "Um, but then also I feel like it's being abused by the gay community because um I know like he sees on grindr all the time people like, like, being like I'm on PrEP so bareback um and it's like people don't realize or I'm not sure if they realize there are other sexually transmitted infections that are like just like probably gonna be spreading more of that. (12137, P1)

In contrast to their non-monogamous counterparts, many monogamous couples implied their personal reasons for not using PrEP by describing situations in which they would consider PrEP. This latter presentation is consistent with the notion that many of these monogamous HIV negative sero-concordant couples perceived their current HIV risk to be low. PrEP is therefore currently not something they perceive as useful, but they would be interested in it if an event increased their perceived risk, such as a sexual slip up or a change in the sexual agreement.

> "I mean we've never worn – I don't think we've never worn a condom before. So, that'd be very weird. I don't know, how you'd do that. It's like going back - way backwards. It would be like I don't know condoms or PrEP or something. I don't

> know. I mean, I'm not one to like necessarily recommend that like to someone but like, it would either be like you know—'cause condoms kind of suck, so yeah. maybe PrEP." (12096, P1)

> P1: So I've been on PrEP but I'm not currently on it. P2: And he stopped when we started dating… And I would want to go on it if we were, um, entertaining guests just because I have, kind of, severe hypochondria around STIs especially, so, um, it's been pointed out to me that, like, anxiety is not a good reason to take PrEP but like I-I don't know. I still-it would make me feel safer. (12142)

These quotes illustrate a unique HIV prevention challenge for monogamous couples. The introduction of PrEP, or another HIV prevention strategy, potentially signals that something about their relationship had changed. These quotes hint that this could have some added emotional significance. PrEP cessation for one of these couples was motivated by the formal establishment of their relationship. For the other, while PrEP is less-aversive than condom use, re-introducing HIV prevention is characterized as "going backwards."

Attitudes of Sero-discordant Couples

Sero-discordant couples raised a set of concerns that were distinct from their HIV-negative counterparts. For those motivated to incorporate PrEP, their motivations centered around living with HIV. This "daily reality" of HIV is something that markedly distinguishes these couples from concordant negative couples. These conversations often highlighted the value of PrEP as an adjunct to HIV medication adherence in the positive partner.

> "Between [my partner] being undetectable and me being on PrEP, it's just so easy to not let it [/HIV/] be a big factor in our lives." (12032, P1, Monogamous)

> P1: "He stays on PrEP. We use condoms; we protect ourselves to the fullest. Even though…it's a 2% chance that he can get something from me. I don't ever want him to catch anything, not from me. P2: We have to protect each other P1: We protect each other we use condoms. You know, and it is what it is but I was upfront with him from day one." (12147, Monogamous)

> P1: …it's definitely more comfortable now knowing that I'm on PrEP and he's taking his medication and that we're both taking that kind of 'half-and-half' kind of idea. … P2: I wanted him to take it obviously because it's an additional measurement in being safe. He felt comfortable knowing I was undetectable and trusted me and I didn't ever think that that would change in the aspect of me not taking my medication. But I always had that worry in the back of my head of like 'what if you are that .01% that it didn't work and that it's my fault and he has to go through something'. So that's why I think I was such a huge advocate, but when I would ask him to do it he'd be like 'oh you know but I trust you and I know you're on your medicine' and I'd be like 'okay well, it's just medicine, two medicines are better than one' (12324, Non-monogamous)

These narratives depict an underlying fear that many GBM living with HIV may have about transmitting the virus to an HIV-negative partner and the relief that a partner's PrEP use provides in such cases. These HIV-positive men are aware of the reality of living with HIV

and express this concern through the fear of their partner sero-converting. Therefore, they are strongly motivated as a couple to adopt PrEP as a preventative measure in order to ensure the comfort of each other.

Despite the protection PrEP use offers sero-discordant couples, some were apprehensive to incorporate PrEP into their sexual health routine. Concerns expressed by these sero-discordant couples largely center around concern for potential medication side effects, adherence issues, and the effectiveness of TasP.

> P1: "We've talked about it. My personal thing is like, I know my medication is hefty chemicals-putting chemicals into your body and I already feel like we already do so much damage to our bodies in this world like why add something else to it. Like for him specifically, for PrEP. Like the less you do to your body the better is my thinking… I'm on medication [/ARVs/] and I've been on it for 3 years. That's pretty much it. We don't use condoms together but if we do invite someone we always use condoms, because of HIV risk but also sexually transmitted diseases and stuff like that. We're not worried about that together, if it's just us. I know it's recommended to use condoms but that's something that I've discussed with my previous doctor and it's obviously a risk to take, but also on the medication, it's very similar to PrEP. It's…P2: It's a low risk (12207, Non-monogamous)

> "…I'm still [trying to understand] PrEP so I don't really know what's the possibility or the risk with taking the PrEP… I don't know that-so that's why I still have that fear [/of PrEP/]…. like if I stop taking my medications because I don't feel like it for a week, that's not really an option for me. So for him I wouldn't foresee that being an option for him either… I just don't feel like that's going to eliminate the risk…" (12117, P1, Monogamous)

The "daily reality" of living with HIV emerges again within these concerns about PrEP use. Here it takes the form of not wanting to burden an HIV-negative partner with the need for a daily medication, which is already born by the HIV-positive partner. This theme is expressed in both the biological consequences of medication consumption and adherence demands. This represents a potential zone of ambivalence for sero-discordant couples as PrEP may reduce the "daily worries" about HIV but adds the demands of "daily dosing" for prevention.

While concerns of PrEP uptake among sero-discordant couples largely centered on the worry of burdening the HIV negative partner with similar daily concerns already imposed on the HIV positive partner (i.e. medication adherence and medication side effects), concerns of general societal effects PrEP also emerged. Similar to monogamous and non-monogamous couples, the issue of behavioral disinhibition was also expressed by some sero-discordant couples.

> "But the younger generations aren't as educated on [PrEP], and that's the thing with PrEP is I feel like they think it's a free for all pass to do whatever they want." (12207, P1, Non-Mongamous)

DISCUSSION

CHTC session content evidenced meaningful distinctions and salient common themes in content from non-monogamous HIV-negative; monogamous HIV-negative, and sero-discordant couples. While anxiety reduction was a common benefit identified by all three kinds of couples, these groups differed meaningfully in the specific anxieties which they felt PrEP addressed. Across the three groups of couples, concerns about PrEP's potential to increase other STI infections by facilitating disinhibition of gay men generally were expressed. In addition, the need for concurrent prevention strategies was a commonly identified barrier to PrEP uptake across these groups of couples; however, there were distinct differences among couples in how these concerns were expressed and the concurrent prevention strategies of greatest relevance. These results illustrate that decisions to use PrEP – among GBM in relationships – draw upon both person and interpersonal factors. The subjective utility of PrEP varies with perception of risk, beliefs about alternative prevention strategies, and relationship functioning.

The reduction of global worries about HIV infection as a motivation for PrEP uptake emerged in content from all three groups of couples. This theme is consistent with more general research on the psychological effects of HIV-related worries on HIV-negative GBM. The anticipation of being stigmatized if one were to become HIV positive has been associated with negative affect in a previous study of GBM (Starks, Rendina, Breslow, Parsons, & Golub, 2013). Interestingly, while fear of seroconversion and HIV stigma has been linked to avoidance of HIV testing (Eisenman, Cunningham, Zierler, Nakazono, & Shapiro, 2003; Fortenberry et al., 2002), alleviation of these fears may serve as a source of motivation for PrEP uptake.

While the theme of anxiety reduction was broadly applicable, specific concerns varied in ways that suggest the need for tailored messaging. Sero-discordant couples focused on PrEP's potential to reduce ongoing concerns about the transmission of HIV within their relationship. For HIV-negative non-monogamous couples, HIV risk through sexual contact with outside partners was an acknowledged reality and PrEP enhanced related safety. For HIV-negative couples in monogamous relationships, PrEP reduced anxiety around potential violations of the relationship agreement and protected against relationship uncertainty.

These findings highlight the salience of risk perception in PrEP decision making. For sero-discordant and non-mongoamous HIV-negative couples, HIV-risk was an acknowledged fact, and PrEP reduced related worries. In contrast, monogamous couples' decisions to forego PrEP often reflected the determination that they did not need it presently. They were open to PrEP "if the situation demanded it" but did not see it as immediately relevant. This is consistent with a broader literature on HIV-risk perception among monogamous GBM. Those in monogamous relationships report testing less-frequently than their open and single counterparts (Stephenson et al., 2015), use condoms less frequently (Sullivan et al., 2009) and find PrEP to be less important than men in open relationships (John et al., 2018). The idea that PrEP would be useful if "the need arose" is also consistent with concerns identified in previous literature wherein monogamous men worried that discussing PrEP with a partner would generate worries that they had violated their sexual agreement (Mimiaga et al., 2014).

These monogamous couples' perception of being low risk for seroconversion may not be accurate for all monogamous couples. Violations of sexual agreements are often not disclosed to primary partners (Gomez et al., 2012; Hoff et al., 2009; Mitchell, 2014). While negotiated safety (Kippax et al., 1997), (establishing a monogamous sexual agreement, or agreeing to consistent condom use with outside partners, and subsequently verifying HIV-negative status through testing and re-testing after the window period) can significantly reduce HIV transmission risk for monogamous couples, its effectiveness is largely dependent on continual testing and ongoing communication (Kippax et al., 1997). There may therefore be at least some monogamous couples who could benefit substantially from PrEP and messaging needs to be tailored to monogamous GBM couples in ways that highlight their potential risk without threatening the legitimacy of the relationship and trust between partners.

Common across all three groups of couples, the attitudes towards PrEP were related to perceptions and use of alternative prevention strategies. Interestingly, concurrent prevention strategies emerged in both arguments for and against PrEP. For some couples (HIV-concordant non-monogamous and sero-discordant couples in particular), PrEP use in addition to other methods of prevention maximized HIV-related anxiety reduction. At the same time, the need for or use of supplemental prevention (e.g., condom use to prevent other STI's or TasP for an HIV positive partner) diminished the benefits of PrEP.

It is noteworthy that while discussing barriers to PrEP uptake or negative attitudes towards PrEP, concerns related to behavioral inhibition emerged from all three groups of couples. Across sero-status and sexual agreement groups, there were indications of the attitude that PrEP serves as a "free pass" to CAS, and contributes to the overall spread of other STIs in a manner that is ultimately deleterious for the gay community. This phenomenon of PrEP-stigma, or negative attitudes towards men on PrEP has been observed elsewhere. Our results provide further evidence that these beliefs meaningfully shape attitudes towards PrEP even for gay men in relationships in a manner that deters PrEP uptake for these men personally and may also lead them to discourage PrEP uptake among other gay men.

These findings have implications for HIV prevention with gay male couples. In particular they provide insight into the universe of PrEP messages which might enhance motivation for PrEP uptake among partnered GBM. Messages which broadly portray PrEP as a method of reducing HIV-related worry may resonate with the widest array of partnered GBM; however, to be effective, these messages must be crafted with care. Messages which enhance motivation for PrEP by signaling that gay men cannot trust their partners may have a deleterious effect on couples and relationship quality. Messages must be crafted to emphasize that HIV-related worry is globally relevant and PrEP is one method to further reduce that concern – which all sorts of gay men might reasonably consider.

These results signal the need to carefully attend to how messages about adjunct prevention strategies are packaged within messaging about PrEP. Enhancing motivation to use PrEP by emphasizing the weaknesses of condom use (inconsistency, breakage etc.) or the fallibility of TasP may inadvertently undermine the performance of behaviors which have substantial health benefits. PrEP needs to be presented as an additive component of a comprehensive

prevention strategy, not one which renders obsolete these prevention alternatives. At the same time, these messages must make clear to partnered GBM what PrEP can add, “above and beyond” condom use or TasP that might make it worth consideration.

These messages about the intersection of PrEP and other HIV prevention strategies may represent an opportunity to challenge negative stereotypes about PrEP users. Messages which present models who are using PrEP as a supplemental strategy and also continuing to think about protecting their sexual health broadly, may counter promiscuous stereotypes. At the very least, messaging should be tailored to avoid inadvertently reinforcing the image that PrEP uptake alleviates all the risks associated with sexual behavior or that PrEP is only for people who are highly sexually active or promiscuous.

Finally, these results point to the utility of interventions that elicit communication between relationship partners. To the extent that PrEP decisions are influenced by perceptions of risk, it is imperative that partners have the opportunity to communicate with one another about ongoing behavior and potential developments in the sexual boundaries of their relationships. CHTC provides one such platform for eliciting these discussions; Here, PrEP messaging may be delivered by the interventionist, and then subsequently discussed by the couple.

These findings must be viewed in light of several limitations. First, data were gathered from CHTC session content, not qualitative interviews. Interventionists may have missed opportunities to probe specific aspects of PrEP motivation, which might have been extracted from a semi-structured interview. Second, we distinguished among sero-discordant couples, monogamous concordant HIV-negative couples, and non-monogamous concordant HIV-negative couples. Future research, with access to larger samples of sero-discordant couples, should probe for potential differences between monogamous and non-monogamous sero-discordant couples. Third, some have suggested that dyadic participation may bias samples better functioning couples, those more open to discussing sex and sexuality (e.g., Hoff & Beougher, 2010) and with higher relationship satisfaction (Starks, Millar, & Parsons, 2015). Relatedly, eligibility criteria resulted in the selection of a restricted range of couples who subjectively think of themselves as “being in a relationship” for 3 months or more.

Finally, the sample was drawn from the New York City metropolitan area. It also had a relatively higher proportion of GBM who were highly educated and higher income. This population is more likely to engage in prevention services in general and may be more aware of and amenable to PrEP (Eaton, Driffin, Bauermeister, Smith, & Conway-Washington, 2015). It is also possible these couples may experience fewer financial or structural barriers to accessing PrEP services than couples of lower socio-economic status. Eligible couples included at least one member who was 18–29 years old. Age has been shown to predict PrEP acceptability (Rosenberg, Sullivan, DiNenno, Salazar, & Sanchez, 2011). Similarly, the sample was restricted to couples in which at least one partner was reported to use substances. Previous research suggests that partnered gay men who use substances are more willing to persuade their partners to use PrEP compared to those who do not (John et al., 2018).

Despite these limitations, this study provides insight into the factors that gay male couples consider when deciding to use PrEP. They provide some indication of how conversations about PrEP may emerge within the context of CHTC delivered specifically to gay couples. They also provide a starting point for tailoring PrEP messages to men in relationships. While all types of couples identified some reasons they might consider PrEP, couples perceptions' of PrEP's relevance, the nature of its benefits, and the interpersonal implications of its use varied by couples' sero-status and sexual agreement. PrEP messages need to be tailored in a manner that is responsive to the perspective of couples. They must be crafted to avoid undermining other effective forms of prevention or the legitimacy of relationships.

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Table 1

		HIV-negative		
	Total	**Monogamous**	**Non-Monogamous**	**Sero-discordant**
	n (%)	***n (%)***	***n (%)***	***n (%)***
n	134 (100)	48 (35.8)	64 (47.8)	22 (16.4)
Race and Ethnicity				
White	62 (46.3)	23 (47.9)	34 (53.1)	5 (22.7)
Black/African American	23 (17.2)	11 (22.9)	5 (7.8)	7 (31.8)
Hispanic/Latino	33 (24.6)	10 (20.8)	15 (23.4)	8 (36.4)
Mixed or Other	16 (11.9)	4 (8.3)	10 (15.6)	2 (9.1)
Sexual Identity				
Gay	118 (88.0)	44 (91.7)	54 (84.4)	20 (90.9)
Bisexual	12 (9.0)	3 (6.3)	7 (10.9)	2 (9.1)
Other	4 (3.0)	1 (2.1)	3 (4.7)	0 (0.0)
Income				
Less than $20K	52 (38.8)	23 (47.9)	23 (35.9)	6 (27.3)
$20K or more	82 (61.2)	25 (52.1)	41 (64.1)	16 (72.7)
Education				
Less than 4 Year Degree	50 (37.3)	20 (41.7)	20 (31.3)	10 (45.5)
4 Year Degree or More	84 (62.7)	28 (58.3)	44 (68.7)	12 (54.5)
HIV status (pre-test self-report)				
Negative/Unknown	123 (91.8)	48 (100.0)	64 (100.0)	11 (50.0)
Positive	11 (8.2)	0 (0.0)	0 (0.0)	11 (50.0)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Age (range 18–61)	*27.07 (5.90)*	*25.56 (3.58)*	*27.38 (5.55)*	*29.50 (9.35)*

Table 2

Couple level demographics

		Concordant HIV-negative†		
	Total	**Monogamous**	**Non-Monogamous**	**Sero-discordant**
	n (%)	***n (%)***	***n (%)***	***n (%)***
n	67 (100)	24 (35.8)	32 (47.8)	11 (16.4)
Racial Concordance				
One Member Non-White	42 (62.7)	13 (54.2)	19 (59.4)	10 (90.9)
Majority White	25 (37.3)	11 (45.8)	13 (40.6)	1 (9.1)
Age Concordance				
Both Members 18–29	47 (70.1)	19 (79.2)	21 (65.6)	7 (63.6)
Only One Member 18–29	20 (29.9)	5 (20.8)	11 (34.4)	4 (36.4)
Education Concordance				
Both Less Than a 4yr Degree	16 (23.9)	7 (29.2)	6 (18.8)	3 (27.3)
At Least One 4yr or More	51 (76.1)	17 (70.8)	26 (81.2)	8 (72.7)
Income Concordance				
Both Less Than 20k	15 (22.4)	8 (33.3)	6 (18.8)	1 (9.1)
At Least One more than 40k	52 (77.6)	16 (66.7)	26 (81.2)	10 (90.9)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
Relationship Length (range 3 – 97 months)	*25.86 (24.16)*	*13.77 (14.57)*	*34.46 (25.87)*	*27.20 (26.46)*

†Self-reported HIV status prior to testing