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HIV-discordant and concordant HIV-positive male couples' recommendations for how an eHealth HIV prevention toolkit for concordant HIV-negative male couples could be improved to meet their specific needs

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Abstract

A number of HIV prevention interventions for male couples are in the pipeline for development as few evidence-based ones exist. Among these projects, none include all three groups of male couples (concordant HIV-negative, HIV-discordant, and concordant HIV-positive) as their target population, and only two are eHealth-based. The present qualitative study sought to assess whether one of the eHealth HIV prevention interventions for concordant HIV-negative male couples – called MCAP – could be adapted to meet the relationship and HIV prevention needs of HIV-discordant and HIV-positive male couples. Data for this study are drawn from in-person, individual-level interviews conducted with a convenience sample of 10 HIV-discordant male couples (n=20) and 8 HIV-positive male couples (n=16) from the Miami-Fort Lauderdale metro area in 2016. Thematic analysis was conducted to identify patterns (themes) of partners' thoughts about the toolkit, including how they perceived it could be improved for their own relationship and other couple's relationships. Two themes emerged from analysis of the qualitative data suggesting how the participants wanted the toolkit to be improved to meet their needs. Specifically, participants recommended for the toolkit to include guidance about integrating the use of biomedical HIV prevention strategies into couple's relationships, as well as for how partners can best take care of each other and further protect themselves from HIV and/or other STIs (*Prevention Guidance*). In addition, participants requested for the concept of sexual agreements to be broadened to include other aspects they deemed to be important in their life (e.g., mental health, exercise and nutrition) (*Holistic agreements*). Findings from the present study illuminate the ways in which MCAP would need to be adapted for these two groups of male couples in order to meet the needs for all three groups of male couples in the U.S. in a future iteration of this intervention.

Keywords

Male couples; HIV prevention guidance; Agreements; Qualitative interviews

Evidence suggests that up to two-thirds of men who have sex with men (MSM) in the U.S. acquire HIV from their primary relationship partners (male couples) (Goodreau et al., 2012;

Sullivan, Salazar, Buchbinder, & Sanchez, 2009). To address the HIV prevention needs for adult male couples, a burgeoning body of research has evolved from assessing how relationship dynamics affects their risk for HIV to intervention development. To date, few evidence-based HIV prevention interventions for male couples have been developed and are now available as effective interventions by the Centers for Disease Control and Prevention, including Couples HIV testing and counseling (CHTC) (CDC, 2012) and CONNECT^{HIP} (CDC, 2017a) for African American MSM in longer-term same-sex relationships where at least one partner uses methamphetamine (Wu, El-Bassel, McVinney, Fontaine, & Hess, 2010; Wu et al., 2011), and for Spanish-speaking Latino MSM and their same-sex partners (Martinez et al., 2016; 2017).

Other HIV prevention intervention studies with male couples are in progress (Purcell et al., 2014), including Project Nexus, 2GETHER, Stronger Together, Partner Steps, and MCAP. Project Nexus is a randomized controlled trial (RCT) that provides CHTC in couples' homes via video-based technology (Stephenson et al., 2017). The pilot trial of the 2GETHER intervention assessed the feasibility, acceptability and preliminary efficacy of the program that integrated HIV prevention with relationship education for 57 young same-sex male couples (Newcomb et al., 2017). Most participants (93%) had positive impressions of 2GETHER; important findings from this trial revealed decreases in HIV risk behavior, increases in information, motivation and behavioral skills related to HIV prevention, and greater investment in the relationship (Newcomb et al., 2017). The Stronger Together intervention focuses on improving engagement in HIV care and antiretroviral treatment adherence by combining in-person CHTC with dyadic adherence counseling; this 24-month RCT with 160 HIV-discordant male couples is in progress (Stephenson et al., 2017). The Partner Steps intervention also seeks to improve engagement across the HIV care continuum from testing to linkage to care, antiretroviral therapy (ART) adherence, engagement in care, and viral suppression for HIV-discordant male couples via two in-person sessions; this RCT is in progress with a projected enrollment of 170 dyads (Bazzi et al., 2016).

Besides Project Nexus, most current and in-progress HIV prevention interventions for male couples occur in person. Given the prolific use of the Internet to seek health-related information among U.S. adults (Pew Research Center, 2013), HIV prevention interventions which leverage web-based technologies may help minimize logistic barriers and increase access to HIV prevention services and related resources. The Male Couples Agreement Project (MCAP) is an eHealth toolkit intervention for male couples with a foundation in relationship science including sexual agreements, sexual health education and HIV prevention. The premise of the toolkit was to provide couples with informational modules about sexual health and HIV prevention strategies (e.g., testing, pre-exposure prophylaxis (PrEP)), and help them form and adhere to a sexual agreement that meets the needs of both men of the couple. Sexual agreements are the explicit conversations that couples have that lead to them creating a mutual decision about which sexual and other relational behaviors are allowed to occur within their relationship and with whom (Hoff & Beougher, 2010; Mitchell, 2014). A pilot RCT was conducted to assess the feasibility of forming and adhering to a tailored sexual agreement could help concordant HIV-negative male couples reduce their HIV risk when condomless anal sex (CAS) is practiced in their relationship. Findings from this study indicate that couples who received the toolkit were more likely to

form and adhere to their sexual agreement, and were also more likely to not engage in CAS with casual sex partners, thereby reducing their risk for HIV compared to couples in the control arm (Mitchell et al., 2017; 2018).

Each HIV prevention intervention described above targets a specific subgroup of male couples, and none include concordant HIV-negative, HIV-discordant, and concordant HIV-positive male couples. HIV prevention interventions which include all three groups of male couples would be advantageous for several reasons. First, some concordant HIV-negative couples may become HIV-discordant, and some HIV-discordant male couples may become concordant HIV-positive at a later time in their relationship. Thus, partners and couples may need new prevention-related information and skills to help them adapt to their change in relationship serostatus, and make informed decisions about how best to manage their new prevention needs. Second, many current evidence-based strategies to reduce HIV risk contain both behavioral and biomedical components that are applicable to all three groups of couples, and at the very least, should be known amongst partners across all groups. For these reasons, the overarching goal of the present, qualitative study is to assess whether MCAP could be adapted to meet the relationship and HIV prevention needs of HIV-discordant and concordant HIV-positive male couples. Findings from the present study illuminate the ways in which MCAP could be adapted for these two groups of couples with the intention of having the next iteration of this eHealth intervention be available for all 3 groups of couples in the U.S.

Method

Recruitment and Eligibility

The University of Miami Miller School of Medicine Institutional Review Board approved all study procedures. Participants in the Miami-Fort Lauderdale metro area were recruited in 2016 via passive recruitment methods and placement of ads on Facebook. Interested men visited the study website listed on the recruitment materials to learn more about the study and gain access to the confidential online screener. Eligible men (aged ≥ 18, resident of Miami-Fort Lauderdale metro area, self-reported being in a HIV-discordant or concordant HIV-positive relationship; practiced CAS in their relationship in prior 3 months; reported no recent history of intimate partner violence or coercion; had not formed a sexual agreement in their relationship) were then directed to provide informed consent electronically. Once consented, participants were prompted to electronically input their own and partner's contact information so their partner could be screened for eligibility and provide consent to participate following the same procedures. Both partners of the couple had to meet all inclusion criteria to enroll. Out of 21 eligible couples, a convenience sample of 10 HIV-discordant and 8 concordant HIV-positive male couples enrolled and participated in the study.

Procedures

Both partners of the couple attended the appointment together, which consisted of three parts. Separately, partners completed the first half of the eHealth HIV prevention toolkit on a computer in a lab. Next, the partner – together as a couple - completed last half of the

eHealth HIV prevention toolkit. While using the toolkit together, partners' responses to the activities from the first half of the intervention were then presented in a comparative fashion to help facilitate discussion about different topics, including agreements. Lastly, each partner then participated in an in-person, semi-structured interview separately and simultaneously. The semi-structured individual-level interviews recorded partnered men's thoughts about the toolkit, and how they thought it could be improved for couples' relationships like their own. Men were asked, "Overall, what are your thoughts about the toolkit?" with a follow-up prompt of, "Now let's explore your thoughts about the different informational pages and activities you completed in the toolkit." Participants were presented with printed images of each webpage of the toolkit as helpful reminders about the content and activities they just experienced. Additional interview questions included, "What topics, if any, do you wish the toolkit had that aren't currently in it?" and "...what other suggestions do you have about how the toolkit can be improved for male couples like you?" All interviews were digitally recorded, transcribed verbatim, checked for accuracy, and de-identified.

Analytic plan

Thematic analysis (Braun & Clarke, 2006) was conducted to identify patterns (themes) of partners' thoughts about the toolkit, including how they perceived it could be improved for their own relationship and other couple's relationships. Using a step-by-step iterative process (Frost, McClelland, Clark, & Boylan, 2014), five members of the research team read all transcripts, took notes, and identified any overarching themes. All members then met to discuss the overarching themes before rereading and coding the transcripts for these themes. During meetings, the team compared and discussed their coding for these themes and made adjustments as needed before creating the codebook. The codebook provided a description of the themes for coding along with their corresponding definitions. Each team member then used the codebook to code the transcripts once again. This process was applied for all transcripts and each team member reviewed one another's coding of the transcripts to ensure consistency was achieved for the themes identified. All coding was done manually. A sum count of each individual-level response per theme was calculated to describe proportion of endorsement within and between couples in the sample, resulting in a table to visualize these endorsements.

Study sample

Ten HIV-discordant and eight concordant HIV-positive male couples participated in an interactive interview for this study. All participants self-reported as gay, except one (bisexual). Regarding diversity, nine men self-reported as Hispanic Latino, twenty as non-Hispanic White, three as Hispanic White, three as non-Hispanic African American, and one as non-Hispanic other. Seven couples were of mixed ethnicity and race (39%). Participant's age ranged 20 to 55 years ($M=38$); average age difference between partners was 6 years. Couples' relationship length varied: three had been together 6-12 months, five for 1-3 years, four for 3-6 years, two for 6-10 years, and four for longer than 10 years. A large proportion of couples self-reported not using condoms for anal sex in their relationship ($N=15$, 83%); three couples indicated their condom usage was sometimes.

Results

Two themes emerged from the analysis. Participants recommended for the toolkit to include guidance about integrating the use of biomedical HIV prevention strategies into couple's relationships, as well as for how partners can best take care of each other and further protect themselves from HIV and/or other STIs (*Prevention Guidance*). Participants also requested for sexual agreements to be broadened to include other aspects they deemed important in their life (e.g., mental health, exercise and nutrition) (*Holistic agreements*). Tables 1 and 2 provide representative quotes for each theme, respectively. Table 3 numerically describes how many concordant HIV-positive and HIV-discordant couples had one or both partners endorse these themes.

Prevention guidance

Participants among HIV-positive and HIV-discordant male couples universally recommended for the toolkit to have explicit prevention guidance pertaining to biomedical strategies and how partners can best to take care of each other and further protect themselves from HIV and/or other STIs. In Table 1, participants emphasized that the toolkit needs to include prevention guidance because it could serve as a resource for them and their relationship partners (i.e., couples) to find information about different primary and secondary prevention treatments (e.g., ART, PrEP, treatment as prevention TasP) available to them, and also as a way to educate and increase awareness about the different medications that exist and how to properly use them (i.e., adherence). Participants among the HIV-discordant male couples also recommended that the toolkit include guidance on how to initiate potentially difficult conversations around seroconversion and the implications it carries on the relationship, as well as about the use of biomedical prevention strategies and deciding which ones to use in the relationship.

Holistic agreements

Participants requested for sexual agreements to be broadened to include other topics they deemed to be important: mental health, and exercise and nutrition (Table 2). For mental health, some participants recommended for the toolkit to include an activity to help couples discuss mental health and how it may impact their relationship, as well as for the toolkit to help them identify what resources they may need if and when a partner is experiencing anxiety, depression, or another mental health condition or disorder. In addition, participants also identified exercise and nutrition as other topics they wanted in an agreement; they consider an agreement as more about taking care of *all* of oneself (and their partner) as oppose to areas which focus just on sex.

Discussion

The present study explored whether MCAP could be adapted to meet the needs of HIV-discordant and concordant HIV-positive male couples. Participants from both groups of couples liked the toolkit, valued their experience from using it, and identified specific ways for it to be improved to meet their needs.

Specifically, couples wanted better prevention guidance on how best to introduce and use biomedical HIV prevention strategies in their relationship, and suggestions for support if a partner seroconverts. Although MCAP contained information about a variety of different behavioral and biomedical HIV prevention strategies, this feedback suggests couples wanted the toolkit to explicitly provide the “how” in addition to describing additional strategies (i.e., the “what”), such as ART. To address the how, the toolkit could include a new module that helps partners identify the pros and cons, concerns, and willingness to use a particular strategy in their relationship. This new module would also need to include a component that provides participants with talking tips and an activity that allows them to practice to identify how they would want to be supported by their partner about using a given strategy. If the same comparative approach is used in the next iteration of MCAP, then partners of each couple could compare their responses and discuss each of the specific strategies, and how they would want to be supported by one another. In recognition that some strategies may not apply to some partners, the content for the new prevention guidance module would need to be organized according to couples’ HIV serostatus.

Previous research has noted that relationship partners’ support for ART initiation and adherence is crucial to obtaining viral suppression (Johnson et al., 2012; Wrubel, Stumbo, & Johnson, 2010) and thus, reducing transmission within the relationship (Bavinton et al., 2017; CDC, 2017b). Other research has noted that HIV-negative partners’ perceptions about their HIV-positive partner’s viral suppression are more salient for whether sexual risk behavior occurs than HIV-positive men’s reports of their own viral suppression and blood test results; thereby suggesting HIV-negative partners’ beliefs about viral suppression may be central to whether or not engagement in CAS occurs within male couples’ relationships (Conroy et al., 2016).

Other research has reported mixed findings about male couples’ attitudes toward PrEP (John, Starks, Rendina, Grov, & Parsons, 2017; Malone, Syvertsen, Johnson, Mimiaga, Mayer, & Bazzi, 2017; Mitchell & Stephenson, 2015; Saberi et al., 2012). For instance, a mixed methods study in San Francisco investigated PrEP awareness and correlates of uptake among HIV-discordant and concordant male couples (Saberi et al., 2012). Many partnered men in this study had low endorsement of PrEP uptake, and PrEP uptake was positively associated with insertive CAS yet negatively associated with receptive CAS among the HIV-negative partnered men. The authors concluded that those who were at greatest risk for HIV acquisition were not as receptive of PrEP compared to those who had moderate HIV risk (Saberi et al., 2012). In contrast, a different study with an online, convenience sample of 631 HIV-negative partnered men – representing 275 concordant HIV-negative and 58 HIV-discordant male couples – reported that over half of these men were very to extremely likely to use PrEP; men’s willingness was positively associated with being in a behaviorally non-monogamous relationship yet negatively associated with higher educational attainment (Mitchell & Stephenson, 2015).

In addition to ART, PrEP and related support, a different study has found that relationship dynamics, such as sexual satisfaction and intimacy, may be differentially associated with engagement in CAS for male couples in a HIV-discordant relationship, such that HIV-negative partners’ reasons for engaging in CAS differ from their HIV-positive partners’

reasons (Starks, Gamarel, & Johnson, 2014). Findings from these prior studies highlight the need for future interventions to consider and integrate how relationship partner's perceptions and reasons influence uptake and use of care and prevention strategies among couples. Furthermore, this body of literature also aligns with the prevention guidance recommendations that couples in the present study stated they want to receive and experience in a future iteration of MCAP.

The second recommendation for improving the toolkit pertained to agreements. Partners want agreements to be more holistic and include other topics such as mental health, exercise and nutrition. Literature about gay and bisexual men's health supports this idea of holistic agreements (IOM, 2011; Wolitski, Stall, & Valdiserri, 2008). One study with 660 gay and bisexual men reported mental health as one of their top five health issues (Grov, Ventuneac, Rendina, Jimenez, & Parsons, 2013). Other work has recognized that gay and bisexual men are more likely to experience different mental health issues (e.g., depression, anxiety) compared to their heterosexual counterparts (Berg, Mimiaga, & Safren, 2008; Cochran, Sullivan, & Mays, 2003; Dew et al., 1997; Newcomb & Mustanski, 2011; Parsons, Grov, & Golub, 2012; Reisner et al., 2009). With respect to physical health, one recent U.S. nation-wide study reported that approximately two-thirds of partnered gay and bisexual men (N=552) chose 'both of us' and about one-quarter chose either 'myself' or 'my partner' for who they thought would benefit most about exercising more, as well as eating healthier (Mitchell, Gamarel, & Nigg, 2018). In sum, these examples suggest that couples want more topics to be included in their agreements, which may in turn help them achieve better health outcomes and relationships.

Limitations

This convenience, diverse study sample represents the opinions of HIV-discordant and concordant HIV-positive male couples from South Florida. The generalizability of these findings are limited due to lack of representation of other couples located elsewhere in the U.S., and because other factors may have influenced couples' experience and opinions about the toolkit that were not captured (e.g., education). Nonetheless, this study did identify concrete ways in which HIV-discordant and concordant HIV-positive male couples would want MCAP improved to meet their specific needs.

Findings from this qualitative study illuminate the need to add additional content and exercises that focus on prevention guidance and a more holistic approach to agreements to the existing eHealth toolkit intervention. These changes will be the first step toward expanding the target audience of the eHealth toolkit, while leveraging the existing structure of the original intervention to help meet the HIV prevention and relationship needs of concordant HIV-negative, HIV-discordant, and concordant HIV-positive male couples in the U.S.

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Table 1

Representative quotes about prevention guidance

Quote representing prevention guidance	Description of the participant
I would include some aspects for people who are already positive, how to take care of yourself, and how to take care of other people...these things	40, Latino Hispanic, in relationship more than 10 years, concordant HIV-positive
Maybe even have a question section for positive guys related to access to care, staying undetectable, encouraging your partner to be on PrEP, or you can use condoms. So, a whole section around, you know, changing behaviors among positive men as well.	48, White Hispanic, in relationship more than 10 years, HIV-discordant
I would like to see more about keeping an undetectable viral load and the importance of taking medications every day or as prescribed. ...maybe, which medications are available or what options people have and that kind of thing.	46, White non-Hispanic, in relationship 3-6 years, HIV-discordant
It [toolkit] had testing about HIV, but it did not have discussions of HIV with your partner, did it?... Ways to discuss it with your partner, and not make them feel uncomfortable... Discussin' prevention if one is positive and one is not...'Cause I think that's a struggle that a lot of male couples have. They don't like to touch the issue when this [seroconversion] happens. I would say a way to schedule doctor visits with your partner... to talk to them about PrEP, about STIs, etc.	27, African American, non-Hispanic, in relationship 3-6 years, HIV-discordant
Maybe as a way of something that needs to be discussed if one of them becomes positive or both, I think it's even more important than the actual treatments, is what that means for the relationship. Like, what does it mean that someone is undetectable, like, what does – how does that influence your positions on safe sex?	48, White Hispanic, in relationship more than 10 years, HIV-discordant

Table 2

Representative quotes about holistic agreements

Quote representing holistic agreements	Description of the participant
Mental Health	
People that have anxiety, depression, bipolar, or any mental health issues cause that is a big issue. I know I deal with it with my husband because I have those issues and it makes it a lot harder for me communicate with him because I withdrawal	33, White non-Hispanic, in relationship 1-3 years, concordant HIV-positive
The mental health issue is a big one, so you gotta give couples, you know, some shared experience to sort of build themselves with whatever resources they need	49, Latino Hispanic, in relationship 3-6 months, HIV-discordant
Exercise and Nutrition	
Exercise and nutrition. Weight lifting maybe	34, Latino Hispanic, in relationship 1-3 years, concordant HIV-positive
You know the eating habits, the exercise and what not, the working out...taking care of yourself. Your body, your skin, your cleansing...That's so important	46, White non-Hispanic, in relationship 6-12 months, HIV-discordant
...In my relationship one of the big discussions we have right now, now that we are getting older... and rounder is more about..., you know, how do we get back in shape, what are the things that we do together - you know - to eat better, to commit to physical activity together - because I think that has to be something that we are going to do together or we are not going to succeed.	39, White Hispanic, in relationship 3-6 years, concordant HIV-positive

Table 3

Representation of endorsement of themes from partners of concordant HIV-positive and HIV-discordant male couples

	Concordant HIV-positive couples' endorsement, N=8		HIV-discordant couples' endorsement, N=10	
Theme	By one partner	By both partners	By one partner	By both partners
Prevention guidance	4	3	4	6
Holistic agreements	3	5	1	9