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## WOULD THE SIBLINGS OF LATINX MEN WHO HAVE SEX WITH MEN ENCOURAGE THEIR BROTHERS TO USE PrEP? FINDINGS FROM A FEASIBILITY AND ACCEPTABILITY STUDY

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### Abstract

We explored whether siblings can be engaged in PrEP promotion. We used the Information-Motivation-Behavior model to develop and conduct surveys and dyadic interviews with Latino men who have sex with men (LMSM) and their siblings (n = 31) and three sibling-only focus groups (n = 20). For LMSM, only n = 14 (45%) agreed they would benefit from taking PrEP, yet

$n = 22$  (71%) would take PrEP to make their sibling worry less about them, and  $n = 23$  (74%) requested a PrEP referral. For siblings,  $n = 20$  (65%) believed PrEP would benefit their brother, and  $n = 19$  (95%) in the focus groups said they would take PrEP to help their brother get started. Qualitative results include (1) siblings' support for PrEP use, (2) explicit conversations about sex were not necessary for discussing sexual health, and (3) siblings wanted to understand what they could do to encourage their brother to consider PrEP. We conclude siblings can be engaged in PrEP promotion.

### Keywords

siblings; men who have sex with men; pre-exposure prophylaxis; HIV; Latino

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## INTRODUCTION

Latinos represent 27% of new HIV infections in the United States; of these, 85% of cases with known risk occurred among Latino men who have sex with men (LMSM), who make up 30% of infections among all MSM (Centers for Disease Control and Prevention [CDC], 2020, 2023). HIV pre-exposure prophylaxis (PrEP) reduces the risk of HIV infection from sex by 99% when taken as prescribed by the U.S. Centers for Disease Control and Prevention (2022a). Increasing PrEP use among Latino men who have sex with men can help prevent new infections. However, in 2018, nearly 300,000 Latinos in the nation were eligible for PrEP, yet only 7,600 (2.5%) had filled prescriptions at retail pharmacies (CDC, 2018). In Los Angeles, a 2017 survey of 184 LMSM found that although 95% had heard of PrEP, only 8% had used it (Los Angeles County Department of Public Health Division of HIV and STD Programs, 2018).

Family ties affect Latinos' physical and mental health (Almeida et al., 2011; Gil, 2000; Harker, 2001; Mulvaney-Day et al., 2007; Shavitt et al., 2016) and can be leveraged successfully in health interventions because they report greater familial social support than do other racial/ethnic groups (Almeida et al., 2009, 2011). Yet efforts that marshaled Latino familial resources to address, for example, substance use (Castro et al., 2009; Marsiglia et al., 2009; Unger et al., 2002) and HIV prevention (Lescano et al., 2009) have focused on heterosexual youth. The lack of family-based interventions for LMSM may stem from assumptions that Latino families are homophobic and never change. However, despite initial experiences of family rejection following disclosure of sexual orientation, many LMSM continue to prioritize family support for behavior change because strained familial ties are often reestablished over time (del Pino et al., 2014, 2016).

In terms of familial support, siblings may play an important role in reducing sexual risk. Seventy-seven percent of Latinos have at least one sibling (Updegraff et al., 2010). We know that perceptions of the quality of sibling relationships are associated with discussions of safer sex among adolescents (Kowal & Blinn-Pike, 2004) and evidence suggests that, at least among heterosexual siblings, they often share similar attitudes and permissiveness toward risky sexual behavior (McHale et al., 2009). Siblings also often serve as an emotional resource throughout the lifespan (Conger & Little, 2010; Hollifield & Conger,

2015; Mikkelsen et al., 2011). More importantly, LMSM have reported that social support from their siblings is an important part of their lives and that support and concern from their siblings could influence their HIV risk behaviors (Garcia, 2022; Garcia et al., 2022). Yet siblings appear to be an overlooked source of social support for public health HIV prevention strategies for LMSM.

The siblings of LMSM have not been engaged in PrEP promotion efforts. Together with a community partner, St. John's Community Health (SJCH), a federally qualified health center in Los Angeles, we conducted research to answer the question: Is it feasible and acceptable to engage the siblings of LMSM to promote PrEP adoption? We developed instruments using the Information-Motivation-Behavioral Skills model (Fisher et al., 2002) and the Transtheoretical Model of Behavior Change (Fisher et al., 2002). We developed a conceptual framework to explore what LMSM and their siblings know about PrEP (information); what might induce siblings to broach the topic of sexual health with their MSM brothers and whether LMSM would consider using PrEP if their siblings recommended it (motivation); and what siblings were willing to do to support their brother should he decide to use PrEP (behavior).

## METHODS

We used a mixed methods design: quantitative surveys, dyadic qualitative interviews, and focus groups. This design enabled us to gather different types of evidence to evaluate what siblings know about PrEP, to identify the extent to which LMSM and their siblings were willing to talk about PrEP, and what siblings were willing to do to encourage their brothers to use PrEP.

## THEORETICAL FRAMEWORK

**Information-Motivation-Behavioral Skills (IMB) Model**—This model asserts that information, motivation, and behavior are the “fundamental determinants” of health behaviors (Fisher et al., 2002, 2003). “Information” includes behavior-related information as well as heuristics that facilitate behavior-related decision-making. “Motivation” includes personal (attitudes towards a health behavior) and social (perceived social support for engaging in a health behavior) motivation. “Behavioral skills” refers to the skills necessary for performing a behavior (Chang et al., 2014). In this model, information and motivation affect behavioral skills, which in turn changes behavior; they can also affect changes in behavior directly (Shrestha et al., 2017). This model has been used across different diseases and health-related behaviors, as well as with Latino populations to increase HIV medication adherence and to increase PrEP use among people at high risk of HIV acquisition and who use substances (Jacobs et al., 2014; Mayberry & Osborn, 2014; Shrestha et al., 2017; Spoelstra et al., 2015). It can accommodate using siblings as a component of the motivation construct, thus integrating the value placed on family support.

**Transtheoretical Model of Behavior Change**—Also known as the Stages of Change (SOC), this model has been used in evidence-based HIV-prevention interventions recommended by the CDC (2022b). It conceptualizes the process of behavior change as stages that a person moves through: (1) Pre-contemplation: not thinking about change at all;

(2) Contemplation: seriously considering change; (3) Preparation: intention to take action within the next 30 days; (4) Action: engaged in the new behavior; and (5) Maintenance: engaged in modified behavior for the past 6 months. Each stage has distinct change processes.

## DATA COLLECTION INSTRUMENTS

We used constructs from the IMB and SOC models and adapted items from PrEP assessments to create items for the survey and a dyadic interview guide. We solicited feedback from our community advisory board before finalizing instruments.

### Survey

**Demographics.:** This included questions on age, place of birth, and living situation.

**HIV Risk.:** Siblings and LMSM were asked, respectively, how strongly they agreed or disagreed (5-point Likert scale) with the statement, “My brother is at risk for HIV” or “How many times did you ‘bottom’ without a condom in the past 3 months?”

**PrEP Awareness/Information.:** These questions related to the “Information” construct of the IMB model and were adapted from a study of PrEP awareness among Latino MSM (Garcia & Harris, 2017). Sample questions include, “Have you heard of PrEP/Truvada before participating in this research study?” and “Please select all of the following options that provided you with information about PrEP/Truvada.” Participants had 11 options to choose from, such as health care professional, sex partner, and friend.

**PrEP Use/Motivation.:** These questions related to the “Motivation” construct of the IMB model and were adapted from studies on attitudes towards PrEP and willingness to use PrEP (Hoff et al., 2015; Shrestha et al., 2017). LMSM were asked, “I would take PrEP daily if it were available to me.” Siblings and LMSM were asked, respectively, “I would worry less about my brother getting HIV if I knew he was taking PrEP” or “I would give PrEP a try if it made my brother/sister worry less about my getting HIV.” Response options for all questions were on a 5-point Likert scale, strongly agree to strongly disagree.

**PrEP Behavioral Skills.:** These questions related to the “Behavior” construct of the IMB model and adapted from Shrestha et al. (2017). Sample questions for LMSM include, “I would be able to remember to take a pill every day,” and “I would be able to manage any initial side-effects.” Sample questions for siblings include: “I could go to the doctor with him,” “I could remind him to take a pill every day,” and “I could help him manage any initial side effects.” Response options for all questions were on 5-point Likert scale, strongly agree to strongly disagree.

**Dyadic Interview Guide**—This qualitative technique has been used primarily in the field of family research, where two participants who share a preexisting role relationship, such as siblings, interact and respond to the same open-ended research question (Morgan et al., 2013). We created a matrix by asking questions using IMB model constructs within each of the first three stages of change (pre-contemplation, contemplation, action), such as

“What stops you from taking PrEP?” (Pre-contemplation/Information), “How does it feel to talk about PrEP with your brother/sister?” (Pre-contemplation/Motivation), and “How do you take care of your sexual health?” (Pre-contemplation/Behavior) (Figure 1). Before the interview, we texted participants the first interview prompt: “Please share a happy memory that you have of each other.”

**Focus Group Guide**—We asked siblings about their reactions to aggregate survey information on their brothers’ HIV risk and themes from the interviews. Other questions included, “Based on the presentation, how would you talk with your brother about PrEP,” and “What do you think are the next steps for an intervention?”

## ELIGIBILITY CRITERIA

LMSM had to (1) self-identify as Latino, (2) be assigned male (sex) at birth, (3) be age 18–39 years, (4) report an HIV-negative status, (5) be willing to talk about sexual risk and PrEP use with a sibling, (6) report never having used PrEP, (7) report a male sex partner in the past 6 months, and (8) meet the PrEP eligibility criteria set by the CDC, e.g., report condomless anal sex in the past 6 months (U.S. Public Health Service, 2018). Siblings had to (1) 18 years old, (2) report a close relationship with their LMSM brother, and (3) be willing to talk about sexual risk and PrEP use with their LMSM brother.

## SAMPLING STRATEGY

We used convenience sampling to recruit participants. Before COVID-19 restrictions went into effect, recruitment procedures included posting flyers and networking at 21 different SJCH clinics, other community clinics, coffee shops, university campuses, conferences, community events, and social venues throughout Los Angeles County. After COVID-19 restrictions went into effect, we transitioned to online recruitment: Facebook, Twitter, Instagram, and Grindr. These platforms allowed us to communicate with potential participants through direct messages (DMs). We paid for an 8-week online recruitment advertisement campaign on Facebook and Grindr. We also compensated a community gatekeeper for every referral we enrolled in the study.

## SCREENING

We screened 195 LMSM and 45 met the eligibility criteria. Some of the reasons why persons were not eligible include not being willing to talk about PrEP with their sibling ( $n = 50$ , 38%), had already used PrEP ( $n = 50$ , 33%), or had not engaged in condomless anal sex in the past 6 months ( $n = 45$ , 30%). Of the 45 eligible LMSM, eight of their siblings refused to be screened, two withdrew, one was withdrawn by the PI, and three were not interviewed because we determined that we had reached saturation after 31 interviews.

## PROCEDURES

We interviewed a sample of PrEP-naïve (i.e., has never used PrEP) LMSM together with a sibling that they trusted and then invited just the siblings to participate in focus groups. First, we emailed and texted participants the consent forms and links for the survey using REDCap. Second, we interviewed participants in person or on Zoom. On the day of

the interview, we obtained participants' verbal assent to participate and to be recorded. Interviews were conducted in either English or Spanish and lasted approximately 45–60 minutes. We used open-ended questions to allow participants to describe their experiences in their own words. This also allowed the interviewer to clarify participants' responses and to observe the dynamic between siblings, such as how expressive and comfortable they were talking about sexual health (Creswell, 2013). After the interview, each participant received \$50 and was given informational brochures on PrEP. Some LMSM requested a referral for PrEP at SJCH. The first three dyadic interviews were conducted in-person in Los Angeles in early March 2020, before COVID-19 restrictions were enacted. Subsequently, 28 interviews were conducted and recorded online with Zoom, a cloud-based video conferencing platform. Interviews were completed by August 2020. Between December 2020 and January 2021, we conducted and recorded focus groups on Zoom with siblings who had participated in the dyadic interviews.

## DATA ANALYSIS

We used a triangulation approach and analyzed all data sources to create an integrated answer to the question, “Is it feasible and acceptable to engage the siblings of LMSM to promote PrEP adoption?” We calculated counts, proportions, and percentages for all survey questions. Dyadic interviews were professionally transcribed. We used an inductive approach to develop the codebook, with a priori codes based on constructs from the IMB and SOC models and additional domains from the interview guide. As a first step, each of the team members (three LMSM and one heterosexual Latina) read the same three interviews to develop additional codes independent of the a priori codes. We then coded the data by using Atlas.ti 8, a qualitative data management and analysis program (Muhr, 1991). Discrepancies in coding were discussed until we reached consensus. For the second step in the process, additional coding was completed primarily by the LMSM research assistant. The third step included a review of the codes, as a team, after half the interviews had been coded. We determined which codes to merge, delete, or to group (i.e., axial code) and updated the codebook. Lastly, we grouped coded content into emerging themes as we coded axially. A consultant with qualitative methods expertise helped frame the initial themes that emerged from the data.

For the focus groups, we grouped the notes taken during the discussions by the question they answered or topic that emerged. Facilitators debriefed immediately after each focus group to assess how these findings confirmed or shifted our interpretation of the dyadic interview data. Two team members later listened to the recordings again to ensure nothing was missed and to confirm key findings.

## RESULTS

We grouped survey, dyadic interview, and focus group results under IMB model and SOC constructs. Results under IMB constructs are supported by at least two sources of data. We focus primarily on findings for siblings.

## PARTICIPANTS

We enrolled 31 sibling dyads and 20 siblings participated in three focus groups. Most sibling pairs did not live together ( $n = 18, 58\%$ ) and most of the siblings were older than LMSM ( $n = 19, 61\%$ ). Select participant characteristics are presented in Table 1.

## SUMMARY OF QUALITATIVE FINDINGS

Three themes emerged across the dyadic interviews and focus groups: (1) siblings' enthusiastic support for PrEP use, (2) explicit conversations about sex were not necessary for discussing sexual health, and (3) siblings wanted to understand what they could do to encourage their brother to consider PrEP. The more siblings learned about PrEP, the more they wanted their brother to use it, and they wanted more information about PrEP so that they can talk to their brother about it again.

### IMB MODEL: INFORMATION CONSTRUCT

Less than half of LMSM ( $n = 14, 45\%$ ) agreed that they would benefit from taking PrEP. Most siblings ( $n = 20, 65\%$ ) believed that their brother would benefit from using PrEP, even though 13 (42%) siblings did not know about PrEP before participating in the study. Siblings were unaware of their MSM brother's level of risk for HIV acquisition: most LMSM ( $n = 24, 77\%$ ) reported engaging in condomless receptive anal sex at least once in the past 3 months, yet few siblings ( $n = 7, 23\%$ ) agreed that their brother was at risk for HIV acquisition (Table 2). In the focus groups, siblings were "shocked" to learn that their brothers reported such levels of risk. They said that they "didn't have the information" to accurately assess their brothers' HIV risk. Siblings agreed that in the end, "I don't know what my brother is doing out there."

### IMB MODEL: MOTIVATION CONSTRUCT

**LMSM**—Although less than half believed that they would benefit from taking PrEP, most LMSM ( $n = 22, 71\%$ ) reported that they would take PrEP if it would make their sibling worry less about them (Table 2). The dyadic interviews and focus groups corroborate this finding. Adrian, 22 years old, shared, "If my younger brother would tell me, 'Oh, you should use it,' maybe ... I might consider it more." After the interviews, most LMSM ( $n = 23, 74\%$ ) requested a PrEP referral.

**Siblings**—The majority ( $n = 25, 81\%$ ) reported that they would worry less about their brother getting HIV if he were using PrEP, although just over half the siblings ( $n = 17, 55\%$ ) reported wanting their brother to use PrEP (Table 2). They worried about their brother because they perceived his environment to be rife with condomless sex and substance abuse and looming with HIV risk. "It's a crazy world out there," Christina, 24 years old, told her brother, "so ... if you have that extra layer of protection, there's no harm in using it. On the contrary, you would just get more help." Thirty-four-year-old Lalo, worried about substance use in his brother's environment shared, "I've seen people having fun when they're drunk, when they're smoking or snorting or whatever." To Lalo, "it's another world" where "everything seems easy." Siblings perceived PrEP as a simple solution to that environmental risk. Yamilet, 24 years old, asked her younger brother, "If something helps



prevent HIV, why not take it?” Speaking to the interviewer, Lalo said, “Help me make him understand to take [PrEP] ... if it’s to avoid getting HIV ... there’s nothing wrong with it.” Likewise, Sara, 33 years old, said to her brother, “I would hope that because it can be so beneficial to help against HIV that it would be something you think about.”

Despite overall support for PrEP, some siblings were more “hands off.” Some siblings thought that using PrEP was a good idea, they had a “hands off” attitude suggested that it was entirely their brother’s decision whether to use PrEP. When asked whether he wanted his brother to use PrEP, RK, 28 years old, replied, “I’m 50/50. It’s not like I can control him. It’s his life. He wants to take it or not ... I just wanna know if he knows what’s he doing and what’s risky and what’s not.” For Alex, 18 years old, even knowing that his brother has unprotected sex occasionally, said, “He should consider it, but I could only tell him. At the end of the day it will have to be all on him.” He later repeated, “I think he should consider it ... [but] it’s all up to him.”

### IMB MODEL: BEHAVIOR CONSTRUCT

**LMSM**—Most LMSM agreed that they would be able to talk with their doctor about PrEP ( $n = 28$ , 90%). Many agreed that they could remember to take a pill everyday ( $n = 22$ , 71%), and just over half ( $n = 16$ , 51%) agreed that they could manage any initial side effects (Table 3).

**Siblings**—Siblings reported being willing to engage in behaviors that would support their brother’s PrEP. Most siblings ( $n = 28$ , 90%) agreed with statements about going to the doctor with their brother, reminding him to take a pill every day, and helping him with any side effects (Table 3). When asked how he can help his brother use PrEP, Lalo replied, “Every day, I would have it right there for him.” Marie, 20 years old, said, “I’d help him by being there the day he decides to talk to [the doctors] about taking PrEP ... so he doesn’t feel like he’s talking about it alone. ... I would just be there for his support.” In the focus groups, siblings requested more information on PrEP because, “It’s important to know all the information about a medication if you want to convince your brother to take it.” Some went further: 19 of the 20 siblings in the focus groups reported that they would take PrEP with their brother if this would help him get started.

Not all siblings were ready to support their brother should he decide to use PrEP. A few siblings responded “undecided” ( $n = 6$ , 19%) and “disagree” ( $n = 1$ , 3%) to the question, “I could support my brother if he wanted to take PrEP.” This question had the highest number of “undecided” and “disagree” responses compared to the other PrEP instrumental support questions (Table 3).

### STAGES OF CHANGE CONSTRUCTS

All LMSM who started the study were either not interested (pre-contemplation), or had only thought about (contemplation), using PrEP. In the focus groups, some siblings ( $n = 5$ , 25%) reported that their brother had started using PrEP (action) after the interview.

## DISCUSSION

Our data illustrate that it is feasible and acceptable to engage the siblings of LMSM in conversations about sexual health and PrEP. More importantly, our results demonstrate that LMSM can be motivated by their sibling to consider PrEP: 23 (74%) requested a PrEP referral and five started using PrEP after the study. And siblings were willing to take PrEP themselves to help their brothers get started with PrEP. These are not results that we expected, but we think they highlight the potential of involving siblings in HIV prevention strategies. These results reinforce research showing that LMSM look to their siblings for social support and that their siblings can influence their behaviors (Garcia, 2022; Garcia et al., 2022). These findings suggest that HIV prevention programs for LMSM should consider either including a sibling-based social support component or adding sibling-based interventions to their repertoire of strategies. They also demonstrate the importance of understanding the motivation construct of the IMB model through a cultural lens because Latinos often choose behaviors in order to “do right” by their family (Davila et al., 2011; Vega, 1995).

### THE IMB MODEL, SIBLINGS, AND LMSM

These results merit emphasis: LMSM requesting a PrEP referral or starting PrEP and siblings reporting a willingness to use PrEP to help their brother get started. This is not something we intended to measure or an effect we expected to find given the exploratory nature of our study. Nevertheless, we can use the IMB model to speculate about what engaged siblings to think about HIV prevention for their brother and why most LMSM requested a PrEP referral and some started using PrEP.

**Siblings and IMB Model Constructs**—Siblings received *information* on PrEP and their brothers’ aggregate level of risk for HIV acquisition. These two types of information changed their perception of their brother’s risk, but also provided a straightforward solution, i.e., PrEP. Siblings became (more) worried for their brother. This was the *motivation* they needed to engage in a conversation about HIV prevention and to express their concerns directly to their brother. Siblings already reported a high level of willingness to provide instrumental support for PrEP use before learning new information in the dyadic interviews and focus groups. Afterward, a surprising *behavior* reported by 19 of the 20 siblings in the focus groups was their willingness to take PrEP themselves if it would help their brother get started. They also wanted more information to talk with their brother about PrEP. We believe the information the siblings received motivated them to learn more about PrEP so they can speak with their brothers about it, and motivated them to commit to taking PrEP themselves.

**LMSM and IMB Model Constructs**—LMSM had plenty of *information* about PrEP, more so than their siblings. But they did not have information about just how strongly their siblings worried about them or cared about them. LMSM also reported high levels of agreement with *behaviors* associated with PrEP use, such as remembering to take a daily pill. Before the dyadic interviews, most LMSM (71%) reported that they would take PrEP if it would make their sibling worry less about them, even though only 45% of them believed that it would benefit them. Our results confirm this. The interview made explicit the

social support available to LMSM should they start using PrEP. Each LMSM also had the opportunity (1) to hear his brother or sister verbalize how much s/he and the family worried about him and (2) to react to their siblings' expressions of concern. We suspect this was the *information* and *motivation* LMSM needed to either request a PrEP referral or actually start using PrEP. We also suspect that siblings may have talked about PrEP with their brother at least one more time after the interview, thereby reinforcing LMSM's motivation to consider PrEP.

## OUR USE OF THE IMB MODEL COMPARED WITH OTHER STUDIES

Our results suggest that the information and motivation constructs seem relevant for both LMSM and siblings, and the behavior construct seems especially relevant for siblings. This stands in contrast with a study that found that among high-risk drug users in treatment, behavioral skills were associated with willingness to use PrEP, not the information or motivation constructs (Shrestha et al., 2017). Another study with MSM found that all three constructs were associated with PrEP use, although other measures of motivation (PrEP attitudes and PrEP descriptive norms) had an indirect effect on use via self-efficacy (Walsh, 2019). Unlike these studies, we did not conduct empirical tests of the IMB model or evaluate new measures of the IMB models constructs. The IMB model was also used in a study with Latino and Latinas living with HIV; the stigma associated with HIV made family support difficult, unlike our study which focused only on the sibling ties of LMSM without HIV (Jacobs et al., 2014). A study of PrEP among LMSM found that to understand decision-making factors, we must distinguish current PrEP users; individuals aware of, but not on PrEP; and individuals unaware of PrEP altogether (Garcia & Harris, 2017). In contrast, we focused exclusively on PrEP naive individuals whether or not they knew about PrEP, and our data is primarily qualitative.

## SUGGESTIONS FOR SIBLING-BASED INTERVENTIONS

Based on what we learned about IMB model constructs, we suggest that interventions designed to engage siblings might include the following topics:

1. *Siblings as a trustworthy source of information.* Teach siblings how to access reliable information about PrEP, where to access it, where they can make an appointment, and how to do this together with their brother. Enable siblings to address topics such as side effects, adherence, and the continued need for condom use to prevent STIs. Help siblings understand that they likely underestimate their brothers' HIV risk.
2. *Siblings motivating LMSM.* Train siblings to initiate conversations about PrEP and sexual health by first expressing their love and concern for their brother. Only afterward can they reflect together on the conditions under which their brothers often make sexual choices (e.g., under the influence of alcohol).
3. *Sibling social support for PrEP engagement.* Help siblings communicate the extent of the support they are willing to provide, such as reminding brothers to get refills or going to the doctor with him.

Future intervention research is needed to confirm and refine this intervention approach and these intervention topics.

## RECOMMENDATIONS

More research is needed to understand the mechanisms through which siblings can intervene upon LMSM's beliefs and attitudes toward PrEP. For LMSM, social motivation may be more effective than individual-level motivation. Overlooking sibling social support and the effect of sibling influences in favor of individually focused approaches may have played a role in perpetuating the disparities in HIV incidence experienced by LMSM since the start of the epidemic.

Our next step is to develop an intervention based on these results. An investigation on a larger scale is needed to understand how sibling relationships can be leveraged in HIV prevention. Future research can also expand HIV prevention interventions for LMSM to include other family ties. Given the burden of HIV borne by LMSM and the centrality of family ties to their health and wellbeing, it behooves researchers and prevention providers to find ways to integrate these relationships into HIV prevention efforts rather than assume these relationships are fraught and strained by homophobia (Almeida et al., 2011; CDC, 2019, 2020, 2023; Gil, 2000; Harker, 2001; McNairy & El-Sadr, 2014; Mulvaney-Day et al., 2007; Shavitt et al., 2016).

## LIMITATIONS

Given the formative nature of our study, small sample, and convenience sampling, our findings are not generalizable. Our sample does not represent the heterogeneity of Latino communities in the United States. Also, our sample only included sibling pairs who were comfortable talking about sexual health with each other and with researchers present. We were unable to interview pairs when one or both siblings did not want to discuss sexual health with each other or with a researcher present. Regarding LMSM who started using PrEP, we do not know whether the dyadic interviews alone motivated them to try PrEP or if siblings were the deciding factor that led them to start using PrEP. These were beyond the exploratory scope of the study.

## CONCLUSION

We conclude that engaging siblings in PrEP promotion efforts for LMSM is feasible and acceptable. Our findings are promising and bolster our contention that the siblings of LMSM are an overlooked resources in HIV-prevention interventions. Future research may help us understand how the siblings of all sexual and gender minorities can positively affect their health decisions.

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		<b>Pre-Contemplation</b>	<b>Contemplation</b>	<b>Preparation</b>
<b>Information</b>	LGM	What stops you from taking it?	What do you need to know to start taking PrEP?	Do you know where to get PrEP?
	sibling	What do you know about PrEP?	What do you like about using PrEP for protection against HIV?	Do you know how to help him get PrEP?
<b>Motivation</b>	LGM	How does it feel to talk about PrEP with your bro/sis?	Is there anything your bro/sis could say to get you to think about PrEP?	How do you feel about your bro/sis wanting you to take PrEP?
	sibling	How does it feel to worry about your brother and HIV?	How do you think your brother would benefit if he took PrEP?	How would you feel if your bro felt ready to start PrEP?
<b>Behavior</b>	LGM	How do you take care of your sexual health?	How prepared are you to take a pill everyday?	What kind of obstacles do you expect to getting PrEP?
	sibling	What do you think about trying to convince your bro to use PrEP?	How do you think you might be able to help your brother?	How do you think you can help your brother overcome any obstacles to getting PrEP?

**FIGURE 1.**  
Interview guide created using constructs from the IMB and SOC models.



**TABLE 1.**Participant Characteristics ( $n = 31$  Sibling Pairs)

	Sibling $n$ (%)	LMSM $n$ (%)
Age, mean: 27.3 (Siblings) and 26.3 (LMSM)		
18–20	6 (19)	4 (13)
21–30	17 (55)	19 (61)
31–39	6 (19)	8 (26)
40+	2 (6)	NA
Born		
Outside United States	9 (29)	11 (35)
United States	22 (71)	20 (65)
Age of siblings relative to gay brother.		
Younger	11 (35)	NA
Twins	1 (3)	NA
Older	19 (61)	NA
Do you live with the brother enrolled with you in this study?		
No	18 (58)	
Yes	13 (42)	
I am the ...		
brother	11 (35)	NA
sister	20 (65)	NA
Heard about PrEP before participating in the study		
Yes	18 (58)	27 (87)
No	13 (42)	4 (13)

**TABLE 2.**HIV Risk, PrEP Information, and PrEP Motivation ( $n = 31$  Sibling Pairs)

	<u>Siblings</u>		<u>LMSM</u>		
	<i>n</i>	(%)	<i>n</i>	(%)	
<i>HIV Risk</i>					
My brother is at risk for HIV					
Agree/Strongly agree	7	(23)	NA		
Undecided	9	(29)	NA		
Disagree/Strongly disagree	15	(48)	NA		
How many times did you “bottom” without a condom in the past 3 months?					
Never	NA	7		(23)	
Once		NA	6	(19)	
2 times		NA	18	(58)	
<i>PrEP Information</i>					
My brother could benefit from PrEP (Sibling)					
Agree/Strongly agree	20	(65)	NA		
Undecided	10	(32)			
Disagree/Strongly disagree	1	(3)			
I would benefit from taking PrEP (LMSM)					
Agree/Strongly agree			14	(45)	
Undecided		NA	14	(45)	
Disagree/Strongly disagree			3	(10)	
<i>PrEP Motivation</i>					
I would worry less about my brother getting HIV if I knew he was taking PrEP (Sibling)					
Agree/Strongly agree	25	(81)			
Undecided	4	(13)	NA		
Disagree/Strongly disagree	2	(6)			
I would give PrEP a try if it made my brother/sister worry less about me getting HIV (LMSM)					
Agree/Strongly agree			22	(71)	
Undecided		NA	5	(16)	
Disagree/Strongly disagree			4	(13)	

Bowker Symmetry Test  
StatisticsStatistic = 2.4,  $df = 3$ ,  $p = .50$ Statistic = 1.7,  $df = 3$ ,  $p = .64$

**TABLE 3.**PrEP Behavior ( $n = 31$  Sibling Pairs)

	<i>n</i>	(%)
LMSM		
I would talk to my doctor about PrEP		
Agree/Strongly agree	28	(90)
Undecided	3	(10)
Disagree/Strongly disagree	0	(0)
I would be able to remember to take a pill every day		
Agree/Strongly agree	22	(71)
Undecided	4	(13)
Disagree/Strongly disagree	5	(16)
I would be able to manage any initial side effects		
Agree/Strongly agree	16	(51)
Undecided	12	(39)
Disagree/Strongly disagree	3	(10)
Siblings		
I could support my brother if he wanted to take PrEP		
Agree/Strongly agree	24	(78)
Undecided	6	(19)
Disagree/Strongly disagree	1	(3)
I could go to the doctor with him		
Agree/Strongly agree	28	(90)
Undecided	3	(10)
Disagree/Strongly disagree	0	(0)
I could help him get refills		
Agree/Strongly agree	28	(90)
Undecided	3	(10)
Disagree/Strongly disagree	0	(0)
I could help him manage any initial side effects		
Agree/Strongly agree	28	(90)
Undecided	3	(10)
Disagree/Strongly disagree	0	(0)
I could remind him to take a pill every day.		
Agree/Strongly agree	27	(87)
Undecided	4	(13)
Disagree/Strongly disagree	0	(0)