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Perceived Social Norms About Oral PrEP Use: Differences Between African–American, Latino and White Gay, Bisexual and Other Men Who Have Sex with Men in Texas

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Abstract

Correct and consistent condom use has been the primary method of HIV prevention until the FDA approve the use of PrEP in 2012. While strong evidence existing regarding the efficacy of PrEP, uptake has remained slower than anticipated. While work is underway to better understand the factors impacting uptake, the majority of this work as been focused on white gay, bisexual, and other men who have sex with men (GBMSM) living in metropolitan regions of the coastal U.S. The current study used a community-based framework to assess perceived social norms through a elicitation survey. A total of 104 GBMSM met inclusion criteria for the study. Several analytic categories emerged across questions and a number of differences were found across race and ethnicity such as who would approve or disapprove off PrEP and who would be likely to use

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PrEP. Further, we found differences between injunctive and descriptive norms. These findings suggest that there are unique factors contributing to PrEP uptake among racial and ethnic minority GBMSM and that to fully understand uptake a more robust measure of perceived norms may be needed.

Keywords

HIV/AIDS; MSM; Gay and bisexual men; Pre-exposure prophylaxis; Perceived social norms; Racial and ethnic minority; Latino/hispanic

Introduction

An estimated 1.2 million individuals are currently living with HIV in the United States, most of them gay, bisexual and other men who have sex with men (GBMSM). Additionally, GBMSM represent 67% of new HIV cases [1]. The Centers for Disease Control and Prevention (CDC) estimates that one in six GBMSM will be diagnosed with HIV in their lifetime. Yet one out of every two African-American and one out of every four Latino GBMSM will be diagnosed with HIV over the course of their lifetime. These increased odds of HIV diagnosis represent a disproportionate lifetime risk for African-American and Latino GBMSM compared to their white counterparts [2, 3].

Until recently, correct and consistent condom use was the primary tool for HIV-prevention among sexually active GBMSM. However, in 2012, the Food and Drug Administration (FDA) approved the use of emtricitabine-tenofovir, name brand Truvada, for primary HIV-prevention [4]. This biochemical HIV-prevention strategy is referred to as preexposure prophylaxis (PrEP) [4] and is recommended for those at high-risk for HIV, including GBMSM [5]. PrEP is an effective strategy for preventing the transmission of HIV. Several clinical trials have shown PrEP is over 90% effective in preventing the transmission of HIV when taken every day [6–8]. Additionally, recent demonstration studies in large urban centers indicate that PrEP effectively reduces the risk for HIV in real-world settings [9–11].

While PrEP uptake is better than previously thought [12, 13] research suggests broader use is needed to have a population-level impact [13]. Sullivan and colleagues report that 40% coverage of HIV-negative GBMSM, is needed to reduce new HIV infections by 25% over the next decade [14]. Further, HIV incidence could be reduced by as much as 40% if 80% of at risk GBMSM use PrEP [14]. However, a recent nationwide study conducted by Parsons and colleagues [15], found that only 9% of PrEP-eligible GBMSM were on, and adherent to, PrEP. Even more concerning is the lower uptake of PrEP among GBMSM of color [16–19], which may contribute to the persistent HIV disparities experienced by this group [19].

Current work on PrEP uptake points to the continued need for identifying psychosocial factors influencing intention to use PrEP. Given that much of PrEP research [20–28] constructs samples in politically liberal regions of the United States, our current knowledge of determinates impacting uptake may not account for politically and socially conservative environments. Further, those living in conservative areas are more likely to be uninsured or underinsured creating additional barriers to PrEP access [20]. It is these same individuals

who are at increased risk for contracting HIV due, in part, to stigmatizing environments that further decrease access to PrEP especially among racial and ethnic minority communities [20]. Texas is largely conservative, especially on issues of sexual health and sexuality. HIV stigma, homophobia, and sex-related stigma impact GBMSM to a greater degree in places like Texas compared to more liberal-leaning regions of the United States [29, 30]. Understanding what drives intention to use PrEP in these areas will provide important information for understanding low uptake outside of larger, metropolitan areas of the coastal U.S. that have thus far dominated the literature.

Much of the research on PrEP uptake among racial and ethnic minority GBMSM is focused on African-American men. Among the barriers to PrEP identified among African-American GBMSM are low awareness [31] perceived negative side effects [31–34], associations with promiscuity [35], and perceived PrEP-related stigma [33, 35]. This body of work also describes structural barriers related to cost of PrEP [17, 33, 36–38], discomfort when talking with a medical provider about sex [35], high distrust of medical providers [35], and providers' fear of risk compensation among African-American GBMSM [39]. Similar barriers to PrEP use exist for Latino GBMSM, including perceived side effects, low awareness, and financial barriers [17, 22, 40]. There are additional barriers specific to Latino GBMSM related to lack of healthcare access due to undocumented immigrant status, poverty, and language barriers with medical providers [17, 22, 40]. Additionally, Latino GBMSM are less likely to report willingness to use PrEP compared to African-American and white GBMSM [21]. However, when educated about PrEP, both African-American and Latino GBMSM report high interest in using PrEP for HIV prevention [18].

Key variables for understanding PrEP uptake include willingness and intention to use PrEP. The Theory of Planned Behavior (TPB) is an intrapersonal level model used to predict behavioral intention and future behavior [40, 41]. TPB is widely recognized for its utility in predicting intention to engage in behavior [41, 42]. While TPB has received its fair share of criticism [43, 44], it is still a relevant theory for understanding behavioral intention [43, 45] and predicting a variety of HIV-prevention behaviors, such as condom use [46] and antiretroviral adherence among GBMSM [47]. Parsons and colleagues' recent work on willingness and intention to use PrEP identified factors that predicted progression through what they refer to as the Motivational PrEP Continuum [14]. Using both TPB and the Transtheoretical Model (TTM) as theoretical frameworks, Parsons et al. were able to show progression through the early stages of change in their model (i.e., pre-contemplation, contemplation, and PrEPparation(sic)). Further, Rendina and colleagues [29] established a clear distinction between unwillingness, willingness and intention to use PrEP across several demographic, psychosocial and structural variables. A major limitation of these studies is that the samples were primarily comprised (72%) of white GBMSM, who may not represent the unique experiences of Latino and African-American GBMSM. Additionally, like most research on PrEP uptake, Parson's and Rendia's work focused on issues related to access and attitudes about PrEP, giving less attention to constructs like injunctive and descriptive norms. Given these limitations, more research is needed to understand differences across racial and ethnic groups regarding perceived social norms about PrEP.

Perceived social norms influence one's intention to engage in a behavior [42]. Perceived social norms are comprised two latent constructs: injunctive norms (i.e., one's perception of who would approve or not approve of a specific behavior) and descriptive norms (i.e., one's perception of who might engage in a specific behavior). Injunctive and descriptive norms work together to influence one's behavior. However, both descriptive and injunctive norms influence behavior independently of the other [48]. According to Morris and colleagues [48] because these norms influence our behavior in different ways, they should be considered independently of the other.

Further, injunctive and descriptive norms can vary based on the social group with which one identifies. Understanding how perceived norms differ across racial and ethnic groups is crucial for designing culturally competent PrEP interventions addressing uptake, as perceived norms have been shown to influence behavior across a variety of behaviors [42, 48–50]. Research on perceived norms also shows that linking a behavior to a dissociative outgroup (i.e., a group that an individual does not aspire to be like) can influence an individual's decisions to engage in a behavior [48–50]. Regarding PrEP, individuals holding negative descriptive norms may be less likely to initiate PrEP compared to those with positive descriptive norms because their perceptions of PrEP users include groups or individuals with whom they do not want to be associated. While some research has included measures of injunctive norms, current research is limited regarding descriptive norms about PrEP.

Overall, little is known about perceived social norms among GBMSM regarding PrEP, especially among non-white populations. Thus, the purpose of this study is to (1) identify GBMSM's perceptions about who would approve or disapprove of their beginning to take oral PrEP in the next 30 days (i.e., injunctive norms); (2) Identify GBMSM's perceptions of individuals, or groups of individual who would be likely or unlikely to begin taking oral PrEP in the next 30 days (i.e., descriptive norms); and (3) Identify differences in injunctive and descriptive norms between Latino, African-American and white GBMSM.

Method

Study Design

We partnered with AIDS Services of Austin (ASA), the largest AIDS service organization in Central Texas and Austin PrEP Access Project (APAP; now named The Kind Clinic) a newly formed, grassroots, nonprofit organization aimed at increasing access to PrEP. At the time of the study, APAP was the only organization in the region providing PrEP. This was the first phase of a broader research program to increase awareness, access, and adherence to PrEP among GBMSM living in the south and central regions of Texas. This phase of the study was informed by the TPB and is the first procedure of a TPB informed intervention: conducting formative research to elicit salient beliefs.

A questionnaire was developed following the guidelines described by Azjen [41, 42]. The questions and the definition of the behavior were reviewed by experts in the field of HIV-prevention, sexual behavior and members of both community organizations. Questions and the behavior were revised based on feedback. A total of 16 open-ended questions assessed

experiential attitudes (5 questions); instrumental attitudes (5 questions); and perceived behavioral control (2 questions). Four open-ended questions were used to assess perceived social norms. Two questions regarding injunctive norms (e.g., List individuals or groups who would approve of you starting to take PrEP in the next 30 days; List individuals or groups who would not approve of you starting to take PrEP orally in the next 30 days) and two questions addressing descriptive norms (e.g., Sometimes when we do not know what to do we look to others, please list individuals who are likely to start taking PrEP in the next 30 days; Sometimes when we do not know what to do we look to others, please list individuals who are unlikely to start taking PrEP in the next 30 days). The present study focuses on these four questions given the lack of information regarding differences in perceived social norms in the literature across race and ethnicity, and because perceived social norms have been shown to vary across race and ethnicity regarding other sexual health behaviors. In both sets of questions, participants were instructed to not provide names of specific individuals, but rather who those individuals are to them or how those individuals would be described. The target behavior was defined using the TACT method [41, 42]: Target, Action, Context and Time. After several iterations, the behavior was defined as, “starting to take PrEP in the next 30 days” as this study focused on understanding intention to use PrEP. Thirty days was chosen to correspond with the PrEP preparation phase of the Motivational PrEP Cascade [15, 42]. In addition to these open-ended questions, participants were asked their: (1) age; (2) relationship status; (3) annual income; (4) educational attainment, (5) sexual orientation; (6) gender; (7) HIV status; and (8) whether they had ever been prescribed PrEP.

Participant Recruitment and Data Collection

Participants were recruited through ASA and APAP. To collect a diverse sample, study recruitment messages were posted on the ASA and APAP websites and Facebook pages. Additionally, palm cards were handed out during community events held by APAP and given to individuals seeking HIV testing at ASA.

Finally, respondents were also recruited through “The Q”—a peer-based, empowerment project at ASA focused on young men who have sex with men living in Austin.

Individuals who reported they currently lived in the region were included in the study. This included men reporting zip codes found in the Austin or San Antonio metropolitan statistical areas (MSA). It is common practice for samples to be recruited in this way as the MSAs are next to each with only 70 miles separating the two cities. Additionally, at the time of the study, the only organization in the area providing PrEP was APAP requiring individuals from both metropolitan areas to travel to the city of Austin for PrEP-related services. Additional inclusion criteria included, identification as a GBMSM, reporting an age of at least 18 years old, indication of an HIV-negative status, and no previous or current PrEP use. Those men who inclusion criteria, agreed to participate in the study, and completed the survey were entered into a raffle to win one of five \$25.00 gift cards for participation. All study protocols were approved by [blinded for review] Institutional Review Board.

Data were collected using Qualtrics [51], an online survey software program commonly used in survey research. At study completion, data were downloaded from Qualtrics into a Microsoft Excel file for analysis. Once downloaded, data were organized so that each

question and corresponding responses had a sheet in the Excel file. A separate Excel file was used for each racial/ethnic group.

Data Analysis

The analytic strategy followed guidelines described by Azjen regarding the formative research phase when developing a TPB intervention and used content analysis [41, 52–54]. The first step of our analytic process was to develop and standardize the codebook. To do this, the lead analyst coded all of the data and generated a list of codes with definitions. This list, and the data, were given to two other experienced coders who independently analyzed participants' responses. As is commonly done, the units of analysis in this study were the salient beliefs and not the individuals who held these beliefs [41, 45, 47], meaning each respondent may have provided several responses to a single question changing the sample size for each question. The coders were also tasked with generating analytic categories for each of the codes. This was done by examining the relationship between codes and creating broader categories that described underlying concept of each group of codes.

Once each coder finished, the coding team met to discuss code assignment. The coding team discussed each instance where there was disagreement until all coders were in agreement for how a particular piece of text should be coded. The initial inter-rater reliability score for each question ranged from 0.88 to 0.92. Additionally, coders discussed whether each code was placed under an appropriate analytic category. Once agreement was met, codes were tabulated to assess which occurred most frequently and then were compared across racial and ethnic categories. The coding team then discussed why these patterns in the data might exist based on previous research and theory. This interpretation of the data, along with analysis, was further discussed with the entire research team.

Results

A total of 159 individuals responded to the survey. Of those who responded, 55 individuals were removed because they either did not provide zip code data or they were outside the study area (24%, $n = 40$). There were no significant differences between those who did and did not provide zip code data. Additionally, those who did not respond to at least one of the open-ended questions were (6%; $n = 10$), and those identified as a woman (3%; $n = 5$) were removed. Of the 104 participants who met inclusion criteria and responded to all relevant questions, the average age was 34 years old ($M = 33.85$; $SD = 8.88$). Just under half of the sample (49%) self-identified as white, followed Latino (41%) and African-American (10%) (see Table 1). The vast majority identified as gay 87%, and 60% indicated they were single or casually dating. Over half of the sample (63%) reported having at least a 4-year college degree. Less than a quarter (24%) reported an annual income of over \$75,000.

Between injunctive and descriptive norms, five analytic categories emerged. These categories included individual characteristics, interpersonal relationships, "types" of people/groups/communities, organizations and unsure/do not know (Tables 2, 3).

Interpersonal Relationships

This analytic category was comprised of individuals respondents would have some type of interpersonal relationship with such as parents, co-workers, or friends. Overall, this category accounted for 55% of positive and 38% of negative injunctive norms. White participants identified a greater number of interpersonal relationships related to positive injunctive ($n = 8$) and descriptive norms ($n = 8$) compared to Latino and African-American respondents. Examples of codes in this category include, friends, family, relationship and sexual partners, and healthcare providers. Friends were the most frequent code related to interpersonal relationships and occurred in similar proportions across the three groups.

An example of the injunctive norm related to interpersonal relationships can be seen in Participant 3's (white, 45) response indicating who the important people in his life are would approve of PrEP use, "my husband would approve. Our friends and family would approve. However, they have no idea what our situation is and it's really none of their business." Similarly, participant 83 (white, 29) reported, "Close friends and sexual partners possibly, and perhaps my coworkers, if we discuss this topic extensively." While many of the white participants indicated their family would be supportive, no Latino respondents identified family as approving of PrEP use though nearly a quarter (24%) of the beliefs elicited indicated their family would disapprove, as participant 28 (Latino, 41) indicates, "my parents would not be likely to approve, especially not my father." This same sentiment is echoed more broadly by Participant 54 (Latino, 28), "my conservative family would not approve [of] PrEP use." Disapproving family was seen across the three racial/ethnic groups as demonstrated by participant 85 (African-American, 23), "family would disapprove," and participant 42 (white, 31), "maybe my parents because they won't understand the issue... and the risk I have."

In terms of descriptive norms, interpersonal relationships was represented as friends, family, relationship partners, healthcare providers, as well as others (see Tables 4, 5). This category accounted for 20% of positive and 11% of negative descriptive norms. Overall, friends was the most common code within this category as both positive (11%) and negative (4%) descriptive norms. When asked who would be likely to begin taking oral PrEP in the next 30 days participant 27 (white, 54) stated, "I have a lot of friends on prep who are out and vocal about it," indicating numerous friends had discussed their PrEP use with him. Similarly, participant 54 (Latino, 31) indicated, "I'm not sure. I do have some friends already on it who openly and proudly tell their stories." In both of these cases the respondents not only identified their friends as PrEP users, but that these friends were proud of taking PrEP and willing to share their experiences. Far fewer negative descriptive norms were associated with this category (see Table 5).

Individuals' Characteristics

This category comprised 11% of positive and 10% of negative injunctive norms and included behavioral characteristics, personality traits, and psychological factors associated with those individuals who participants perceived would either approve or disapprove of their PrEP use. White participants held a greater proportion of injunctive and descriptive norms related individual characteristics compared to Latino and African-American respondents, with

Latino GBMSM reporting the fewest across the majority of questions. These individual characteristics were associated with promiscuity, perceived risk behavior, and a desire to prevent HIV. For example, participant 1 (white, 32) indicated that, “anyone having unsafe sex, anyone with multiple partners, and anyone wanting to reduce chances of infection even with using a condom,” would approve of oral PrEP use. Participant 1’s response suggests that individuals who approve of oral PrEP use are those who engage in high HIV-risk behaviors, as well as individuals who are motivated to reduce their risk for HIV. Negative injunctive norms were described in a similar way as shown by participant 26’s (white, 32) response, “people who think it as an excuse to have reckless unprotected sex with multiple partners. It is not a prevention of other STI’s and certainly not a 100% effective I am sure,” suggesting those who believe that PrEP use is associated HIV-risk behavior or connect PrEP use to a desire for unprotected sex with multiple partners would likely disapprove of PrEP use. These ideas of promiscuity and increased risk are reflected in participant 35’s (white, 52) response when he describes a conversation with a friend, “just talking the other day about PrEP my friend [and they] assumed that if people take PrEP it’s because they want to be promiscuous.” In both instances, participants believed that individuals who perceived PrEP as a desire to engage sex “unsafe” sex with multiple partners would be less likely to approve of their PrEP use.

Overall, individual characteristics accounted for 28% of positive and 37% of negative descriptive norms. In terms of negative descriptive norms, this category was comprised of five sub-categories: perceived HIV-risk, sexual behaviors, personality traits, PrEP-related knowledge, and access issues.

Perceived HIV-Risk

Perceived HIV-risk represented 4% of positive descriptive norms, but did emerge as a negative descriptive norm. This sub-category included individuals’ beliefs related to HIV risk or and the likelihood of using oral PrEP in the next 30 days. The idea underlying this sub-category is shown in participant 35’s (white, 39) response, “People who are sexually active with multiple partners who are concerned about HIV infection and want to be responsible about protecting themselves from HIV infection,” would be likely to use PrEP. This suggests there is a perception that those who are promiscuous, but want to prevent HIV would be likely to use PrEP. Additionally, participant 4 (white, 32) indicated, “anyone wanting to reduce chances of infection even with using a condom” would likely use PrEP. No Latino or African-American participants reported descriptive norms related to perceived HIV-risk.

Sexual Behaviors

The sub-category sexual behavior includes responses about an individual’s relationship status/promiscuity (e.g., single/multiple partners versus monogamous relationship), sexual position (e.g., top, bottom), and perceived risk behavior (e.g., sex without condoms, casual sex). Overall, this sub-category represented 9% of positive and 18% of negative descriptive norms. Participant 76 (white, 32) exemplifies the idea behind this sub-category when stating, “everyone seeking anonymous sex, every guy that bottoms” would be likely to begin using PrEP in the next 30 days. Further, participant 34 (white, 44) explains, “men seeking constant

unprotected sex” would be likely to use PrEP, which is echoed by participant 53 (Latino, 31), “some people I know who do not use condoms,” suggesting that only men not using condoms would be likely to use PrEP. Similarly, negative descriptive norms also focused on relationship status, sexual position and degree of sexual risk taking, as participant 32 (white, 32) indicates: “committed couple between negative partners, sexually non-active people,” would not be likely to use PrEP. This sub-category is also described by participant 89 (white, 35), “those who rarely have sex, those who believe in oral only” and participant 36 (Latino, 30), “Monogamish couples who practice safer sex methods with others.” In each of these responses, participants do not identify specific individuals who would take PrEP, but rather identify specific sexual behaviors and relationship factors associated with individuals who would use or not use PrEP for HIV prevention.

Personality Traits

This category includes responses about the character of individuals who would be likely or unlikely to take PrEP, such as being honest, valuing protection or self-control, and being responsible. Overall, this sub-category represented 3% of positive and negative descriptive norms. Participant 31’s (white, 49) response captures the idea of the sub-category, stating, “people who actually don’t lie to their doctors, to their partner, or to themselves. People who are honest.” Participant 31’s comment suggests that individuals who are honest about the sex they have are more likely to begin using PrEP in the next 30 days. Participant 40 (white, 39) also conveys that PrEP use is an outcome of “[wanting] to be responsible about protecting themselves from HIV infection.” Here, participant 40 suggests that individuals who are responsible will likely begin using PrEP in the next 30 days. While positive descriptive norms regarding personality traits, were associated with positive traits, negative descriptive norms in this sub-category were mixed. For example, participant 2 (white, 32) indicated, “those with self-control to use a condom,” indicating those who are unlikely to PrEP have self-control to use condoms, suggesting those lacking self-control would be likely to use PrEP instead of condoms. Similarly, participant 47 (Latino, 41) indicates, “people who are intelligent and do have a problem with condoms” further suggesting well informed individuals would not use PrEP. However, participant 29’s response (African-American, 30) “people who don’t care or just think with a different mindset,” suggests those who are not taking PrEP “don’t care.”

PrEP-Related Knowledge/Awareness—This sub-category accounted for 7% of positive and 9% of negative descriptive norms. This theme included beliefs that individuals’ level of PrEP-related knowledge, awareness or understanding would influence the likelihood of PrEP use. For example, participant 42 (white, 52) states:

As people learn about PrEP, and the word gets out and the stigma gets squashed, more people will take to the idea of PrEP. There need[s] to be more education campaigns to help people understand the risk/benefit so they can make a personal, informed decision.

Participant 42’s response suggests that individuals who are better informed about PrEP would be more likely to take PrEP and further indicates that there should be more education and awareness campaigns to help individuals make informed decisions. This idea was also

expressed by participant 85 (white, 46) who indicated, “people with no knowledge of PrEP at all” would not be likely to start taking oral PrEP in the next 30 days or as participant 40 (white, 39) responded, “. . . people who buy into the Truvada Whore myth.” Taken together, these beliefs suggest that low levels of awareness, or misunderstandings of PrEP users, make it less likely that these individuals would use PrEP. However, one respondent suggested that those who had sufficient information about safer sex and PrEP would be less likely to use PrEP stating, “Informed individuals and those with self-control to use a condom.” In this context, it seems participant 2 (white, 32) is suggesting that individuals who have the actual knowledge (i.e., informed) are similar to those who would have the self-control to use condoms, meaning that those who would use PrEP are uninformed about it in some way which is putting them at risk for HIV.

Access Issues—Access Issues was the final sub-category that emerged within descriptive norms related to individual characteristics. Codes in this sub-category include lack of insurance or financial means need for PrEP. Participant 87 (African-American, 28) indicates that, “middle class white gay men, honestly,” suggesting that affluent, white gay men would be likely to use PrEP. He later continues, responding to the question about those would be unlikely to begin using PrEP in the next 30 days stating:

People with low incomes – [One] they can’t afford the medication, and [two] they might not even know it exists since there is a lack of education on the matter. And there is no way that Texas schools are going to start teaching teenagers about PrEP. Even most universities in this state would probably shun the thought.

This idea of access, and limited access for racial and ethnic minorities is further conveyed by participant 78 (Latino, 25):

I can see people of color, especially poor people of color as least likely to begin taking PrEP. My reasons are mainly lack of access to reliable insurance, religious beliefs on sexuality, and lack of information as key factors. As much promise as PrEP seems to show, I feel it might not be as accessible to poor queer people of color, and undocumented people too. I can see how structural inequality can influence the access to this pill.

In both cases, lack of access is conceptualized as the inability to afford medication because of lack of money or insurance due in part to distal factors such as lack of education.

Types of People/Communities/Groups

Within this analytic category respondents identified “types” of people that could be grouped together based on demographic characteristics. This category accounted for 17% of positive and 24% of negative injunctive norms. While white participants indicated several different types of people who would approve of their using PrEP, Latino participants only indicated that gay men would approve, and African-American participants did not identify any positive injunctive norms related to this theme. The most common code for positive injunctive norms related to this theme was gay men. Participant 85 (white, 46) indicates that gay men would approved of him starting PrEP, specifically identifying gay men who had sex without condoms, “other gay men interested in unprotected sex with multiple men.”

The most common code (17%) associated with negative injunctive norms was religious/conservatives. However, Latino and African-American more frequently reported negative descriptive norms associated with religious/conservatives compared to white respondents. For example, as participant 58 reports (Latino, 39), “people from conservative groups who don’t believe in preventive sexual consequences methods other than not having sex,” would not approve of PrEP use. Similarly, participant 78 (Latino, 25) suggests that those who are politically conservative may have moral objections to PrEP use and therefore disapprove, “I can also see conservatives and Republicans and extreme right wingers fuming over PrEP because in their moral universe, we are perverts looking for medical ways to just have sex and become morally bankrupt.” This was further described in terms of being against sex before marriage, as suggested by participant 87’s (African-American, 31) comment, “people opposed to premarital sex.”

This category comprised 44% of positive and 32% of negative descriptive norms. The most common positive injunctive norms elicited included gay men (19%), young people (8%), and sex workers (7%). Participant 149 (Latino) specifically identified young gay men stating, “gay youth” would like be likely to begin taking PrEP in the next 30 days, while participant 119 (white) more generally described young people indicating, “individuals [who are] younger than 25.” Additionally, 12% of beliefs held by Latino and 4% held by white GBMSM identified sex workers as being a type of person who would likely use PrEP as indicated by participant 159 (Latino), “escorts, sex workers” and participant 84’s response, “friends in the adult industry.” Finally, common negative descriptive norms included heterosexual/straight people and religious/conservatives. Participant 7 (white, 32) indicated, “conservatives, religious, uninformed [individuals]” would be unlikely to begin using PrEP in the next 30 days.

Organizations

This category included instances when participants identified organizations that would approve or disapprove or their using oral PrEP. Organizations represented 12% of positive and 10% of negative injunctive norms. Positive injunctive norms related to organizations were most frequently elicited from Latino respondents. The most frequent code representing organizations was AIDS Service/Community Health Organizations (ASO), as participant 64 (Latino, 28) stated, “AIDS councils and organizations.” This was echoed by participant 104 (African-American, 23) when he indicated, “The organization and company I’ve spoke to about PrEP is the AIDS Triangle in Beaumont [TX]. They would approve of me using PrEP.” Another common code was social media. Specifically, participant 76 (white, 33) identified an online PrEP group, “PrEP Facts Facebook group.” Participant 82 (Latino, 40) provided a similar response stating, “The groups that advertise they are on Prep on social media apps would like that other people are on it.”

Finally, negative injunctive norms most commonly associated with organizations included churches and ASO/Community Health Organizations. Participant 27 (white, 54) identified a well-known Southern Californian-based ASO that had been vocal about the perceived dangers of PrEP, “some LA AIDS [organization] that gets way too much money” and participant 44 (white, 34) specifically named this organization, “AIDS Healthcare

Foundation.” Churches were organizations frequently identified as negative injunctive norms, especially among non-white respondents, as participant 78 (Latino, 25) discusses “I think of churches such as Christian Protestant (and its denominations) as well as Catholic churches. I think they tend to have a more conservative view of sexuality, viewing it as a sin or something immoral.” No positive descriptive norms were associated with organizations and the only code associated with negative descriptive norms was AIDS Service Organization (1%).

Discussion

The current study adds to our knowledge about perceived norms regarding PrEP and provides a deeper understanding of differences across race and ethnicity. Previous studies investigating social norms [27], have asked participants to respond to generic statements about “other people” or the importance of “others’ perceptions” of their behavior, but not identify the influence of specific referents that may be important to racial and ethnic minority GBMSM. While this previous work [28] has identified the impact of specific referents, this research is limited as it only addresses injunctive norms, reports on a sample that is predominately white and relies on measures constructed from mostly white samples, potentially missing the unique social norms existing among African-American and Latino GBMSM. The current study fills this gap by identifying similarities and differences in both injunctive and descriptive norms between African-American, Latino, and white GBMSM from their perspectives. The findings indicate a more robust measure of perceived social norms is warranted to better understand the impact of beliefs on others on intention to use PrEP.

Common themes were found across injunctive and descriptive norms. Interpersonal relationships (e.g. parents, friends, relationship partners) were more often represented as injunctive norms whereas types of people and individual characteristics (e.g. being honest, responsible, valuing protection) more frequently emerged as descriptive norms. This makes theoretical sense. While both injunctive and descriptive norms are perceptions about others, they represent different concepts. Injunctive norms describe perceptions about approval or disapproval of others, while descriptive norms are an assessment of the likelihood that others will engage in a specific behavior [42, 48, 49]. It is likely that individuals are more apt to identify significant others when considering who would approve or disapprove of their behavior and more inclined to think of generalized others, based on group identity or individual characteristics, when asked who would engage in a specific behavior [48]. This finding has implications for predicting intention as well. To have a more robust measure of perceived social norms regarding PrEP use, both injunctive and descriptive norms should be measured. Limiting measurement to include only injunctive norms regarding PrEP potentially limits our understanding of the influence that perceived social norms have on intention to use PrEP among GBMSM.

The differences uncovered between descriptive and injunctive norms indicate that interventions addressing PrEP uptake need to target the beliefs about significant referents’ perceptions, types of people and individual characteristics associated with PrEP use. By addressing injunctive norms, interventions should try to influence perceptions of specific

referents' approval of PrEP use, as well as the specific referents' beliefs. However, if GBMSM do not perceive similar others to be using PrEP or only associate socially stigmatized groups and risk behaviors with PrEP use, they may be less likely to move through the early phases of the Motivational PrEP Cascade [15]. Turning the conversation about PrEP away from one focused on "at-risk" groups towards a more holistic discussion about sexual health, may change how GBMSM perceive PrEP.

Overall, there were differences across themes when comparing positive and negative injunctive norms. Most notably were differences regarding individual-level characteristics. Participants mostly identified behavioral characteristics of individuals, such as not using condoms or having multiple sexual partners in reference to approval of PrEP use by others. In other words, men in this study believed individuals who would approve of PrEP use would be those not using condoms or those who had multiple sexual partners. However, negative injunctive norms about individual characteristics were largely beliefs and perceptions about PrEP (e.g., PrEP-whore perception; belief that the risk of PrEP is too great, uniformed or irresponsible). Take together these findings suggest GBMSM believe those approving of PrEP are at high-risk for HIV and those who disapprove (1) believe it is too risky to take PrEP, (2) believe it might increase sexual risk-taking behavior, or (3) lack knowledge about PrEP. While previous research has shown that individuals perceived a potential change in risk behavior once they begin PrEP [54], our findings differ. The current study shows that GBMSM believe that approval of PrEP use will come from those socially portrayed as sexually immoral or irresponsible (e.g., do not use condoms, multiple sexual partners). At the individual-level, the concerns likely stem from perceptions of sexual health risk (e.g., STI, pregnancy). However, at the interpersonal level, the concern likely stems from being associated with those who are deemed sexually immoral. In places like Texas, and other conservative areas, the association between sexual immorality and PrEP likely has implications for uptake compared to places with more tolerant views on sexual behavior. Descriptive norms that associate PrEP with those who are sexually immoral (i.e., dissociative outgroup) may decrease intention to use PrEP.

White participants identified a greater number of referents who would approve of PrEP use suggesting that the social networks of this group may be more accepting of PrEP compared to Latino and African-American GBMSM. The perceived lack of family approval for oral PrEP use among Latino participants coupled with nearly a quarter reporting their family would not approve presents a potential barrier for this population. A common cultural concept across Latino groups is "familismo" [55]. Familismo is defined as a strong sense of family, belief of obligation to the family and family as a source of pride. Latinos often place great value on family and previous research has shown the importance of family approval regarding behavior [54]. A disapproving family may be a barrier to PrEP use among Latino sexual minority men which may impact initiation and persistence of PrEP use. Further research is needed regarding the impact of family on decisions to use and continue to use PrEP among Latino GBMSM.

Latino participants most often identified organizations as approving of their use of PrEP, suggesting this population receives most of its cues about sexual health from community-based organizations and ASOs and less information from their interpersonal relationships.

In light of these findings, ASOs and community organizations should take on the task of educating family members of Latino GBMSM in areas of sexual health, and PrEP. These findings further point to the necessity of including family when developing strategies to increase PrEP use among this population. Latino and African-American participants also more often held negative injunctive norms regarding religious individuals. Latino and African-American communities often have strong ties to religion and faith communities which have been shown to influence their health and behavior [56–58]. The beliefs that religious individuals and churches would not approve of their PrEP use may be barriers for these men. In addition to addressing barriers associated with the family, it will be important to work with churches, when possible, to increase discussions about sexual health and PrEP. Recent work has found success working with African-American churches to design and implement sexual health education which includes PrEP as one of the components [59]. This same strategy, if tailored, could be used in Latino and African-American religious communities in Texas, as a way to change the views of religious organizations and as a venue for increasing awareness and acceptability of PrEP in this region.

Descriptive norms followed a similar pattern to injunctive norms. When asked who would take PrEP, some of the most often identified types of people, aside from gay men, were social categories our society associates with immorality, such as sex workers, barebackers, and drug addicts. This could have implications for the uptake of PrEP in much the same way the HIV epidemic was fueled by these same social perceptions (i.e., only immoral individuals are at risk for HIV). Targeting specific groups for PrEP use is an ideal strategy, but also comes at the cost of associating this biomedical HIV-intervention with groups considered immoral by broader society. We are not suggesting sex workers are immoral or that GBMSM should not be a priority population. However, changing perceptions of who takes PrEP and the perceived characteristics of someone who takes PrEP, away from dissociative outgroup members and toward aspirational or associative referents this may increase uptake in GBMSM communities facing significant levels of stigma about sexuality, HIV, and PrEP.

The current goal of PrEP advocates is to increase access to PrEP [60]. To make PrEP as equitable as possible, we must continue to identify unique factors impacting uptake among racial and ethnic minority GBMSM [61, 62]. While our sample included African-American GBMSM, they were nevertheless underrepresented in this study, so the conclusions drawn from the data may not accurately represent the larger group. While we attempted to systematically include equal numbers of white, Latino and African-American men, our study fell short. The failing was in part due to our limited connections with this community. Future research in this area should focus on building stronger community ties to address the systematic underrepresentation of men of color in this work. Even with this limitation, we felt it important to present the data for all groups, but acknowledge this may not be the most representative data for African-American GBMSM South and Central Texas. We also believe that grouping African-American men with Latino men would limit our interpretation of the data. For these reasons, we have kept the groups separate. We also acknowledge that our data is qualitative and has been quantified to assess patterns in the data. Further examination of these differences identified in our analysis is warranted, but we see these data as an important first step in constructing more robust measures of intention to use PrEP.

The differences in perceived social norms may partly explain why Latino and African-American men were less likely to use PrEP compared to their white counterparts found in previous work. Thus far the focus on PrEP has been on increasing access and assessing attitudes impacting uptake. These data suggest a need to go beyond understanding individual level factors and addressing the social environment. Changing perceptions about who this intervention is for, and characteristics associated with individuals who take it, may help to increase uptake among those who do not see themselves as at risk for HIV or who do not believe themselves to be part of a group associated with ‘immoral’ behavior [63]. Finally, this data shows the importance of understanding perceptions about PrEP across racial and ethnic groups for the purpose of making awareness, access and uptake more equitable and to address the longstanding disparities in HIV prevalence that exist.

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Table 1

Demographics stratified by race and ethnicity (n = 104)

	% Total sample (n = 104)	% White (n = 51)	% Latino (n = 43)	% Black (n = 10)
<i>Age (mean, SD)</i>	33.85 (8.88)	37.45(9.33)	31.18(7.15)	26.9 (4.122)
<i>Relationship status</i>				
Single or casually dating	60	53	63	80
In a relationship	40	47	37	20
<i>Annual income</i>				
Less than \$30,000	35	27	33	80
\$30,000-\$74,999	38	33	53	10
> \$74,999	24	38	13	0
No response	2	3	0	10
<i>Educational attainment</i>				
Some high school	1	0	2	0
High school diploma/G.E.D.	4	2	0	30
Some college/Associate Degree	22	22	27	10
Currently enrolled in college	8	6	13	0
4-Year college degree (BA, BS)	31	31	30	40
Graduate School	32	39	28	20
<i>Sexual orientation</i>				
Gay	87	84	95	70
Bisexual	13	16	5	30

Table 2

Positive injunctive norm themes, stratified by race and ethnicity (n = 145)

	% Total (n = 145)	% White (n = 78)	% Latino (n = 42)	% Black (n = 14)
<i>Interpersonal relationships</i>	55	63	42	50
Friends	22	22	22	21
Family	8	8	-	29
Relationship partners	6	8	4	-
Sexual partners	3	5	2	-
Healthcare provider	5	5	7	-
Nobody/few people	7	12	-	-
Co-workers	1	2	-	-
Everyone	2	1	4	-
Advisor	1	-	2	-
<i>Individual characteristics</i>	9	8	6	14
Multiple sex partners	1	2	-	-
Casually dating	1	-	-	7
Do not use condoms	3	3	2	-
Sexually active	3	2	4	7
Want to reduce HIV Risk	1	1	2	-
<i>Types of people/community/groups</i>	17	18	13	0
Gay men	9	10	9	-
Bisexual men	1	2	-	-
Straight men	1	1	-	-
Military	1	1	-	-
Sex workers	1	1	-	-
Serodiscordant couples	1	1	-	-
Injection drug user	1	1	-	-
HIV positive	1	1	2	-
HIV negative	1	-	2	-
<i>Organizations</i>	12	8	22	7
Social media groups	3	1	9	-

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	%Total (n = 145)	%White (n = 78)	%Latino (n = 42)	%Black (n = 14)
AIDS service/community health organizations	9	7	11	7
Gilead	1	-	2	-
Community clinics	1	-	2	-
<i>Uncertain/don't know</i>	7	-	13	29

Represents the total number of beliefs elicited not the total number of individuals in the sample

Table 3

Negative injunctive norm themes, stratified by race and ethnicity (n = 104)

	% Total (n = 104)	% White (n = 48)	% Latino (n = 42)	% Black (n = 14)
<i>Interpersonal relationships</i>	38	42	36	29
Friends	5	6	2	7
Family	19	19	24	7
Relationship partners	4	6	2	-
Healthcare provider	4	6	2	-
Nobody/few people	2	2	2	-
Co-workers/employer	2	-	-	14
Everyone	2	2	2	-
<i>Individual characteristics</i>	10	17	2	7
PREP-whore perception	2	4	-	-
Believe risk is too great	1	2	-	-
Believe HIV not a threat	1	2	-	-
Believe only condoms prevention HIV	1	2	-	-
Believe PREP is not 100% effective	1	2	-	-
Uninformed	1	-	2	-
Irresponsible	1	2	-	-
Monogamous	1	-	-	7
<i>"Types" of people/community/groups</i>	24	17	36	21
Gay men	1	2	-	-
Straight men	3	4	2	-
Religious/conservatives	17	4	29	21
WASPS	1	2	-	-
Safer sex advocates	1	0	2	-
People of color	1	0	2	-
<i>Organizations</i>	10	10	7	14
Non-LGBT organizations	1	2	-	-
AIDS service organizations	2	4	-	-
Church	3	2	7	14

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	% Total (n = 104)	% White (n = 48)	% Latino (n = 42)	% Black (n = 14)
Government	1	2	-	-
<i>Uncertain/don't know</i>	19	15	19	29

Represents the total number of beliefs elicited not the total number of individuals in the sample

Table 4

Positive descriptive norms themes, stratified by race/ethnicity (n = 116)

	% Total (n = 116)	% White (n = 57)	% Latino (n = 50)	% Black (n = 13)
<i>Interpersonal relationships</i>	20	28	16	8
Friends	11	16	16	-
Family	1	2	-	-
Co-workers	1	2	-	-
Healthcare providers	2	2	-	8
Sexual partners	1	2	-	-
Relationship partners	1	2	-	-
Everyone	1	2	-	-
Nobody	1	2	-	-
<i>Individual characteristics</i>	28	33	20	31
Perceived HIV risk	4	4	4	8
High-risk individuals	2	2	2	-
Concerned about HIV	2	2	-	8
Recent HIV scare	1	-	2	-
Sexual behavior	9	14	6	0
Anonymous sex seekers	1	2	-	-
Has casual sex	2	2	2	-
Single/non-monogamous/multiple partners	3	5	-	-
Sexually active	2	2	2	-
Does not use condoms	2	2	2	-
Bottom	1	2	-	-
Personality traits	3	5	2	0
Value protection	1	2	-	-
Honesty	1	2	-	-
Responsible	1	2	-	-
Liberal	1	-	2	-
PrEP-related knowledge/PrEP awareness	7	7	4	15
Aware of/educated about PrEP	7	7	4	15

	% Total (n = 116)	% White (n = 57)	% Latino (n = 50)	% Black (n = 13)
Access issues	4	4	4	8
Insurance	2	2	2	-
Affluent	2	2	-	8
Those with easy access	1	-	2	-
<i>Types of people/communities/groups</i>	53	39	56	31
Gay Men	19	18	18	23
Periodiscordant couples	3	5	2	-
Young people	8	5	12	-
Sex workers	7	4	12	-
Military/soldiers	2	2	2	-
Barebackers	1	2	-	-
Sluts	1	2	-	-
Only white men	2	-	2	8
Celebrities	1	-	2	-
Drug addicts	1	-	2	-
LGBTQ community	1	-	2	-
My community	1	-	2	-
<i>Uncertain</i>	8	2	8	31

Represents the total number of beliefs elicited not the total number of individuals in the sample

Table 5

Negative descriptive norms stratified by race/ethnicity (n = 114)

	% Total (n = 114)	%White (n = 58)	%Latino (n = 43)	%Black (n = 13)
<i>Interpersonal relationships</i>	11	12	7	23
Friends	4	7	–	8
Family	4	3	2	8
Co-workers	1	–	–	8
Relationship partners	1	–	2	–
Everyone	2	2	2	–
<i>Individual characteristics</i>	37	48	26	23
Sexual behavior	18	22	14	8
No or little sexual risk	4	7	2	–
Tops	1	2	–	–
Only sex with PrEP users	1	2	–	–
Use condoms/practice safe sex	5	5	7	–
Monogamous relationship	5	7	2	8
No casual sex	1	–	2	–
Personality traits/characteristics	3	3	2	–
Self-control to use condoms	1	2	–	–
Irresponsible/Don't care	1	2	–	–
Not comfortable talking about sex	1	–	2	–
PrEP-related knowledge/awareness	9	14	2	8
Concern about side effects	1	2	–	–
Lack of knowledge and awareness of PrEP	2	3	–	–
Belief "Truvada Whore" myth	2	3	–	–
Do not understand STIs	1	2	–	–
Uninformed	3	2	2	8
Believe HIV shouldn't be prevented	1	2	–	–
Access issues	8	9	7	8
Lacking insurance	2	2	2	–
Can't afford it	5	7	2	8

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	% Total (n = 114)	% White (n = 58)	% Latino (n = 43)	% Black (n = 13)
Lacking access	1	–	2	–
“Types” of people/communities/groups	32	31	35	23
Drug users	2	3	–	–
Religious/conservative	6	3	10	–
Homophobe	1	2	–	–
Heterosexual/straight people	12	14	14	–
Gay men	4	5	–	8
Younger men	3	3	–	8
Older men	3	–	5	8
People of color	1	–	2	–
Politicians	1	–	2	–
Undocumented	1	–	2	–
Organizations	1	2	–	–
AIDS Service Organization	1	2	–	–
Uncertain	19	7	33	31

Represents the total number of beliefs elicited not the total number of individuals in the sample