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Barriers and Facilitators to PrEP use and HIV Testing for Subgroups of Latino Sexual Minority Men

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Abstract

Pre-exposure prophylaxis (PrEP) and HIV testing inadequately reach Latino sexual minority men (LSMM), fueling HIV disparities. This study identified determinants of LSMM's PrEP use and HIV testing and examined differences across subgroups (i.e., age and immigration history). First, we identified the most to least endorsed barriers and facilitators of PrEP use and HIV testing among LSMM (1) over vs. under 40 years old, and (2) across immigration histories (US born, recent immigrant, established immigrant). Next, we examined differences in barrier/facilitator ratings across these age and immigration status groups. Key overall determinants were cost, knowledge, and perceived benefit/need. However, there was variation in determinants across age groups (i.e., cost, affordability, navigation support, and normalization) and immigration statuses (i.e., language, immigration concerns, and HIV knowledge). There were also differences across service types; mistrust and concerns was a barrier related to PrEP but not HIV testing. We found unique and common multilevel factors across prevention services and subgroups. Language, cost, and clinic/system issues are key barriers in accessing HIV prevention that should be considered when developing implementation strategies to enhance the reach of these services to LSMM.

Keywords

Latino; HIV; PrEP; age; immigration status

Latino sexual minority men (LSMM) face HIV disparities and are a priority group in the *Ending the HIV Epidemic* (EHE) plan (Fauci et al., 2019). Among sexual minority men and other men who have sex with men (MSM)[1] in the United States, 25% of new HIV diagnoses occur among LSMM, with incidence stabilizing but remaining higher relative to

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[1]We use the term "sexual minority men" (SMM) when referring to participants in the current study as well as other studies in which all participants identified as gay, bisexual, or another sexual minority identity. We use the term "men who have sex with men" (MSM), a behavioral term, when describing men who may or may not identify as sexual minority men, but report having sex with men.

non-Latino White MSM in recent years (Hess et al., 2017). If these rates persist, about one in five LSMM will be diagnosed with HIV during their lifetime (Rodriguez-Diaz et al., 2021). HIV disparities are attributable to psychosocial and environmental conditions that disproportionately impact young SMM. For example, compared to their heterosexual peers, young MSM who experience sexual and racial minority stress are significantly more likely to use tobacco, alcohol, and illicit drugs, and experience depression and anxiety (Diaz et al., 2020; Kipke et al., 2020). Numerous factors contribute to elevated HIV incidence among LSMM, including substance use, discrimination, stigma, social isolation, and migration experiences (Kipke et al., 2020). Taken together, there are several intersecting factors that may contribute to LSMM's HIV-related health disparities. This is consistent with Intersectionality Theory (Crenshaw, 1991) which posits that people are often marginalized by multiple, overlapping sources of oppression related to their own salient identity markers (e.g., age, immigration history), and that this in turn shapes their opportunities, health, and well-being.

Despite the existence of evidence-based HIV-prevention interventions such as HIV testing and pre-exposure prophylaxis (PrEP), these services inadequately reach LSMM (Jaramillo et al., 2021; Kutner et al., 2021; Lelutiu-Weinberger & Golub, 2016). Discomfort communicating with healthcare providers due to HIV stigma in health care settings has been linked to lower PrEP use among LSMM (Lelutiu-Weinberger & Golub, 2016). Moreover, young Latinos aged 13–24 report lower HIV testing rates (39%) compared to other racial/ethnic groups (75% among Black and 52% among non-Hispanic White adults) (Ma & Malcolm, 2016). Given the various determinants that may deter LSMM from engaging in HIV-prevention, such as discomfort communicating with providers, there is a need to identify within-group differences in determinants of HIV-prevention engagement.

Although HIV disparities affect LSMM overall, aggregating LSMM together in one group could mask unique risks and protective factors among subgroups, particularly between U.S-born and immigrant LSMM (Allen & Leslie, 2020; Bucay-Harari et al., 2020) and older and younger LSMM (Center for Disease Control and Prevention, 2019). LSMM are a heterogeneous group, with different experiences based on immigration history, age, and cultural norms (Bridges et al., 2021). Intersectionality theory would suggest that within the broader group of LSMM, intersecting systems of oppression may uniquely shape the experiences of LSMM who are also, for example, experiencing discrimination based on age or immigration status. Epidemiological data also suggests the importance of understanding determinants of HIV-related outcomes within subgroups. For example, within LSMM, there is higher HIV incidence for younger LSMM (ages 18–39) compared to older LSMM (age 40+) (Center for Disease Control and Prevention, 2019). Additionally, in Miami and Florida, the majority of new HIV diagnoses occur among LSMM born outside the United States (Kota et al., 2021; Ramírez-Ortiz et al., 2021). Even within immigrant LSMM, HIV-related outcomes may differ based on years since immigration. For example, research shows that LSMM who are recent immigrants (within five years of arrival) have lower HIV prevalence than those who have been in the U.S. for five years or longer (Oster et al., 2013). These intersecting identities may also introduce broader sociocultural barriers that deter LSMM from engaging in HIV-prevention; prior research has shown that PrEP is differentially accessible for LSMM across age groups and immigration statuses (Harkness et al., 2021;

Kanamori et al., 2021; Shrader, Arroyo-Flores, Skvoretz, et al., 2021; Shrader, Arroyo-Flores, Stoler, et al., 2021; Valdes et al., 2021). For example, fear of deportation reduces immigrant LSMM's access to healthcare (Yamanis et al., 2021). Moreover, health literacy, income, acculturation, and length of time in the United States are associated with higher HIV rates among LSMM born outside the United States (Beymer et al., 2016; Ramírez-Ortiz et al., 2020; Yamanis et al., 2021). Given within-group HIV disparities among LSMM as they relate to age and immigration history, understanding within-group differences in determinants of HIV-prevention engagement is key to achieving equity.

With the HIV epidemic disproportionately impacting LSMM, the suboptimal reach of HIV-prevention to LSMM, and the heterogeneity of the LSMM community, there is a pressing need to identify barriers and facilitators to PrEP use and HIV testing among LSMM in general, as well as subgroups of LSMM who are most impacted by the HIV epidemic. There is a dearth of data that attends to the determinants of access to HIV prevention and treatment services among LSMM in Miami. Researchers have called for developing and testing strategies to extend the reach of HIV-related services to subgroups of LSMM, particularly recent immigrants and non-English speaking, undocumented young LSMM (Kanamori et al., 2021; Ramírez-Ortiz et al., 2021). To fill this gap, we examined determinants (i.e., barriers and facilitators) across a group of LSMM and within subgroups of LSMM who are experiencing HIV disparities: younger LSMM (compared to older) and recent/established LSMM (compared to US born). By identifying common and unique determinants of PrEP use and HIV testing, we recognize the heterogeneous needs among this population. To address HIV disparities among LSMM in Miami and achieve EHE goals (Fauci et al., 2019), this study explores two research questions: (1) What are the most endorsed barriers and facilitators to LSMM's use of PrEP and HIV testing overall, and (2) To what extent do the barriers and facilitators differ across subgroups of LSMM?

Methods

Participants

The parent study included 290 LSMM who participated in the DÍMELO study, a cohort study to identify barriers, facilitators, and implementation strategies to increase LSMM's engagement in evidence-based HIV-prevention and behavioral health treatments (Harkness, Lozano, et al., 2022). Eligible participants were LSMM (i.e., SMM who identified as Latino/Hispanic) who reported being HIV-negative or unknown HIV status, were 18–60 years old, and lived in the greater Miami, FL area. Although further details on the recruitment process are in the parent study's main outcome paper (Harkness, Lozano, et al., 2022), we provide a brief summary here. Participants were recruited through several mechanisms such as: snowball recruitment, community venues, social media, listservs, and a "consent-to-contact" database. Interested participants completed a brief screener to verify the inclusion criteria. Verified participants were then enrolled and consented using REDCap. Following consent, participants completed the baseline survey and were compensated $40 upon completion. All study procedures were reviewed and approved by the University of Miami Institutional Review Board (Approval Number: 20181006).

In the current analysis, we utilized a subsample of LSMM who reported being sexually active in the past six months (n = 256, 88.3%). We chose to subset the sample based on CDC guidelines (Centers for Disease Control and Prevention, 2021) that all sexually active adults be informed about PrEP. See Table 1 for study variable characteristics of the sample.

Measures

For this secondary analysis, our focus was on the measures from the parent study that are described below.

Demographics—Participants completed a demographic questionnaire, indicating their age (years), nativity, years lived in the United States, and other key demographics. For the current study, we focused on two key demographic groups: age and immigration history. We selected these demographic subgroups because of the disproportionate HIV incidence among younger LSMM and LSMM born outside the US. For the current study, we created categorical groupings. For age, we divided participants into men under 40 and men over 40 given that there is higher HIV incidence for younger LSMM (ages 18–39) compared to older LSMM (age 40+) (Center for Disease Control and Prevention, 2019). For immigration history, we divided participants into those who were recently immigrated to the US (i.e., lived in US less than five years), established immigrants (i.e., lived in US for five years or more), and those born in the US. We chose to group LSMM based on immigration history (i.e., US born vs not US born) based on epidemiological data that HIV incidence is higher among LSMM who are immigrants than those who are US born (Kota et al., 2021; Ramírez-Ortiz et al., 2021). We decided to further examine differences within LSMM who were immigrants based on data showing that HIV prevalence is higher among LSMM who have lived in the US for more than five years compared to those who lived in the US for less than five years (Oster et al., 2013).

Barriers and Facilitators Scales—Based on our prior qualitative work (Harkness et al., 2021), and a previously established barriers and facilitators to treatment scale as a point of departure for structuring the scale (Kazdin et al., 1997), we developed two barriers and facilitators scales that are the focus of the current study (Lozano et al., Under Review): (1) PrEP (49 barrier items, 29 facilitator items) and (2) HIV testing (46 barrier items, 28 facilitator items). Participants rated barriers from 1 (didn't get in the way of using the service at all) to 5 (completely got in the way of using the service) and facilitators from 1 (didn't or wouldn't help me get the service at all) to 5 (completely did or would help me get the service). In our prior work (Harkness, Lozano, et al., 2022; Lozano et al., Under Review) we developed subscales that represented barriers and facilitators to PrEP use and HIV testing. The resulting barrier subscales were as follows (one for each prevention service– PrEP use and HIV testing): (1) lack of knowledge, (2) lack of perceived need, (3) mistrust, (4) stigma, (5) lack of culturally competent providers and outreach, (6) negative provider demeanor, (7) clinic and medical system issues, (8) privacy concerns, (9) high cost, (10) language, and (11) immigration barriers. We also included two additional barriers, lack of transportation and negative past experience with PrEP/HIV testing. Higher scores meant that the particular domain/item interfered more with accessing the service. The derived facilitator subscales were: (1) knowledge, (2) high perceived need, (3) the service being

normalized, (4) culturally competent provider, (5) navigation support, (6) positive provider demeanor, and (7) low cost. PrEP/HIV Testing altruism and incentives were also included as facilitators. Higher scores meant that the facilitator was (if they had obtained services) or would be (if they had not obtained services) more helpful in obtaining services. Reliability coefficients of the PrEP/HIV Testing subscales can be found in Table 2.

Data Analyses

Descriptive statistics were used to identify the most to least endorsed barriers and facilitators for LSMM. Next, we examined differences in patterns across subgroups of LSMM. Here, we re-examined the descriptive statistics for LSMM (1) over vs. under 40 years old, and (2) across immigration history (US born, recent immigrant, established immigrant). We then conducted mean difference tests (i.e., independent sample *t*-tests and Kruskal-Wallis tests, respectively) to assess whether there were significant differences in barrier/facilitator ratings across subgroups. All analyses were conducted in SPSS Version 28 (IBM Corp., 2021).

Results

Complete participant demographics are reported in the main outcome paper for the parent study (Harkness, Lozano, et al., 2022). Briefly, LSMM in the DÍMELO study were on average 31.9 years old (SD = 8.32), mostly identified as gay (83.8%), and about half were born outside the continental US (51.4%). There were 73 (28.5%) participants who reported currently being on PrEP (see Table 1).

PrEP Use Determinants

The PrEP barriers with the highest endorsements were lack of knowledge about PrEP, PrEP mistrust and concerns, PrEP costs and insurance issues, privacy concerns, and lack of perceived need or urgency for PrEP (Table 3). The pattern of results differed, however, between younger LSMM and LSMM 40 and older. LSMM under 40 rated lack of perceived need or urgency for PrEP significantly higher ($F(1,251) = 6.49$, $p < 0.05$) than older LSMM. We also observed differences among LSMM's PrEP barriers based on immigration history. Results showed that there was a statistically significant difference in language barriers to PrEP between the immigration history subgroups ($\chi^2(2) = 27.42$, $p < 0.001$) with mean rank scores of 159.36 for recent immigrants, 129.56 for established immigrants, and 115.66 for U.S. born LSMM. There was also a statistically significant difference in immigration barriers to PrEP between the immigration history subgroups ($\chi^2(2) = 44.70$, $p < 0.001$) with mean rank scores of 170.00 for recent immigrants, 129.38 for established immigrants, and 111.98 for U.S. born LSMM.

LSMM's PrEP facilitators with the highest endorsements included PrEP affordability, perceived benefits of PrEP, PrEP knowledge, PrEP navigation support, and PrEP providers having a positive demeanor. LSMM under 40 rated PrEP affordability ($F(1, 253) = 5.63$, $p < 0.05$) and PrEP being normalized by others ($F(1, 254) = 2.69$, $p < 0.05$) significantly higher compared to older LSMM. There were no subgroup differences across immigration history in terms of facilitator endorsement.

HIV Testing

The HIV testing barriers with the highest endorsements included privacy concerns, lack of perceived need, cost, lack of knowledge about HIV testing, and clinic/medical system issues related to obtaining HIV testing (Table 4). We observed a number of within group differences based on age; younger LSMM had rated lack of perceived need ($F(1, 254) = 8.01$, $p < 0.01$), cost ($F(1, 254) = 5.02$, $p < 0.05$), clinic/medical system issues (e.g., the medical system being confusing or hard to navigate; $F(1, 254) = 4.48$, $p < 0.05$), and lack of culturally competent HIV testing providers ($F(1, 254) = 5.59$, $p < 0.05$) significantly higher compared to older LSMM. We also found a statistically significant difference in language barriers to HIV testing between the immigration history subgroups ($\chi^2(2) = 21.63$, $p < 0.001$) with mean rank scores of 152.07 for recent immigrants, 131.18 for established immigrants, and 117.40 for U.S. born LSMM. There was also a statistically significant difference in immigration barriers to HIV testing between the immigration history subgroups ($\chi^2(2) = 54.19$, $p < 0.001$) with mean rank scores of 171.19 for recent immigrants, 134.08 for established immigrants, and 107.82 for U.S. born LSMM.

LSMM's facilitators to HIV testing with the highest endorsements were perceived benefits of testing, altruism, testing knowledge, affordability, and culturally competent providers. We again found subgroup differences based on age, such that younger LSMM rated HIV testing altruism ($F(1, 254) = 8.07$, $p < 0.01$), cost ($F(1, 254) = 8.92$, $p < 0.01$), positive provider demeanor ($F(1, 254) = 6.74$, $p < 0.05$), testing navigation support ($F(1, 254) = 6.27$, $p < 0.05$), testing being normalized ($F(1, 254) = 8.60$, $p < 0.01$), and incentives for HIV testing ($F(1, 254) = 8.00$, $p < 0.01$) significantly higher relative to older LSMM. We also observed a statistically significant difference in HIV knowledge facilitators between the immigration history subgroups ($\chi^2(2) = 7.76$, $p < 0.05$) with mean rank scores of 154.98 for recent immigrants, 121.75 for established immigrants, and 123.72 for U.S. born LSMM See Table 5 for an overview of the barriers and facilitators with the highest endorsement by HIV-prevention service.

Discussion

The purpose of this study was to identify determinants of LSMM's use of PrEP and HIV testing and, secondarily, to examine whether and how these determinants differ across subgroups of LSMM experiencing HIV disparities. Findings revealed that there was extensive overlap in the most highly endorsed determinants for HIV testing and PrEP. High cost, lack of knowledge, and lack of perceived need or urgency were consistently the most highly endorsed barriers for LSMM regardless of whether they were rating HIV testing or PrEP barriers. Relatedly, these barriers were also mostly consistent across subgroups of LSMM. Similar patterns were noted for facilitators, with perceived benefits, knowledge, and affordability of services all consistently the most highly endorsed facilitators across all subgroups and service types. The similarities across both service types suggests that there is a need for a unified approach (i.e., focusing on the same barriers and/or facilitators) to engage LSMM in PrEP use and HIV testing (see Table 5).

Despite the similarities, there were differences within groups that are critical to address to ensure that those most burdened by HIV are equitably reached and engaged in needed

services. For example, younger LSMM rated cost of HIV testing as a stronger barrier than older LSMM. This finding is consistent with studies with young, Black SMM that have also found that cost is a barrier to receiving HIV care (Parchem & Molock, 2022). Relatedly, younger LSMM endorsed HIV testing affordability as stronger facilitator – suggesting that there should be a focus on ensuring HIV testing is affordable to ensure that younger LSMM who may not have insurance or cannot afford HIV testing have access to this important prevention tool. Other system-level barriers that had significant differences among immigration history subgroups for both HIV testing and PrEP were language and immigration concerns. In addition to managing costs, there is a need for system-level strategies to increase reach of HIV testing and PrEP such as providing services in English and Spanish (Harkness, Weinstein, et al., 2022) and ensuring that engaging HIV testing and PrEP will not impact immigration status or cause deportation (Suro et al., 2022). Addressing barriers and leveraging facilitators that were more strongly endorsed for subgroups of LSMM who experience HIV disparities may be key to reducing overall and within-group HIV disparities among LSMM.

Notably, some barriers and facilitators were only relevant for certain services. LSMM consistently reported mistrust and concerns as a barrier to PrEP, a finding that was also observed across age and immigration subgroups. However, mistrust was not a highly endorsed barrier for HIV testing. This is consistent with findings which have found that Latinx individuals are most likely to be negatively impacted by the advertisements that suggest that PrEP is not safe relative to non-Latinx Whites, subsequently impacting individual PrEP decision-making (Grov et al., 2021). The impact of PrEP mistrust among LSMM is highlighted by the high proportion of LSMM in this study who reported either never taking PrEP or not currently taking PrEP (71.5%). It may be that because HIV testing has been available for a longer time and does not involve taking a medication (despite being a medical service) LSMM do not have as many trust-based concerns about this compared to PrEP.

The results of this study suggest that there is a critical need for implementation strategies to scale PrEP and HIV testing, up and out to LSMM (Blashill et al., 2020; Harkness et al., 2021; Rhodes et al., 2013). Our findings suggest the need for these implementation strategies to be culturally grounded and tailored to subgroups of LSMM. By assessing both barriers and facilitators, we were able to explore the potentially unique roles that the same construct may have in impeding vs. facilitating service use. Assessing both barriers and facilitators also allow the implementation strategies designed based on the findings to leverage important facilitators rather than focusing only on mitigating barriers. Another strength of our assessment is that we assessed determinants at multiple levels, rather than focusing on individual level determinants which is common in the health promotion literature. Our findings, therefore, provide information about how to design multilevel implementation strategies that address both individual (e.g., knowledge, perceived need) and structural determinants (e.g., clinic system issues, cost) that were highly endorsed in the current study. As an example, to address the clinic system issues (structural determinant), one solution may be to integrate PrEP and HIV testing into existing health care systems and offer them on an “opt out” basis rather than requiring clients to ask for them. As HIV prevention services become integrated into existing systems, providers may discuss PrEP

and testing with their patients more often (Petroll et al., 2017; Pinto et al., 2018), which may subsequently improve LSMMs' knowledge (individual determinant) about HIV prevention tools.

Although our findings highlight determinants that were most endorsed among LSMM in the current study, the findings also reveal the complexity of obtaining services for LSMM. There is no one barrier or facilitator that was consistently endorsed for any service or subgroup; accordingly, there is likely no one implementation strategy that will serve as the "golden ticket" to achieving equity. Even barriers that were rated relatively low can still undermine engagement in services. Considering these determinants holistically is important to ensure that LSMM's needs are met and there is an increase in uptake of PrEP use and HIV testing. For example, it may be that some LSMM have individual-level determinants that encompass facilitators (i.e., PrEP perceived need) and barriers (e.g., PrEP mistrust). Despite the perceived need for PrEP, it may be that the mistrust or concerns of the safety of PrEP overrides its potential benefits. Providers should therefore be prepared to provide LSMM with the appropriate information to successfully engage them in using PrEP.

The present study findings should be interpreted while considering its limitations. Participants were from one geographic area in South Florida and do not account for the full heterogeneity of LSMM communities. Second, analyses were cross-sectional and, therefore, we did not examine how barriers and facilitators changed over time. Third, two of the HIV testing subscales had reliability coefficients that were less than .60. Additionally, LSMM living with HIV were not included in the current study; this subgroup of LSMM may have unique barriers and facilitators to obtaining HIV treatment which was not examined in the current study. Finally, LSMM had different experiences with PrEP use. Relatively few (28.5%) were currently taking PrEP, which may have affected how they responded to the survey items.

Despite these limitations, this study contributes to the limited literature on multilevel barriers and facilitators that may be impeding or advancing the process of scaling HIV-prevention up and out to all LSMM equitably. It is well documented that although LSMM experience HIV disparities overall, these disparities are exacerbated at the intersection of other identity statuses (i.e., age, immigration status). This study is one of few that contributes to a more robust understanding of the determinants of using PrEP and HIV testing within these important subgroups of LSMM. Our findings of within group differences point to the need for developing and evaluating implementation strategies tailored to these groups to achieve HIV health equity, consistent with the Ending the HIV Epidemic plans.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Data Availability Statement:

The data that support the findings of this study are available from the corresponding author, A.H., upon reasonable request with an approved concept sheet and data use agreement.

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Table 1

Study Variables

	PrEP/HIV Testing Sub-Sample (*n* = 256)
Variable	**Frequency (%)**
Age	
18–39	215 (84.0%)
40+	41 (16.0%)
Immigration status	
U.S. Born	118 (46.1%)
Recent Immigrant	45 (17.6%)
Established Immigrant	93 (36.3%)
Sexual orientation	
Gay	218 (85.2%)
Other sexual minority	38 (14.8%)
PrEP Status	
Currently on PrEP	73 (28.5%)
Taken PrEP in the past and temporarily stopped	21 (8.2%)
Taken PrEP in the past and permanently stopped	20 (7.8%)
Never taken PrEP	142 (55.5%)

Table 2

Reliability Coefficients of PrEP and HIV Testing Subscales

Subscale	PrEP Cronbach's Alpha	HIV Testing Cronbach's Alpha
Barriers		
Lack of Knowledge	.84	.83
Lack of Perceived Need	.72	.57
Mistrust	.74	.70
Stigma	.93	.92
Lack of Culturally Competent Providers and Outreach	.81	.77
Negative Provider Demeanor	.89	.89
Clinic and Medical System Issues	.83	.72
Privacy Concerns	.80	.76
High Cost	.90	.88
Language	.85	.84
Immigration Barriers	.86	N/A[a]
Facilitators		
Knowledge	.78	.63
High Perceived Need	.91	.81
Normalization of Services	.87	.86
Culturally Competent Provider	.85	.78
Navigation Support	.93	.92
Positive Provider Demeanor	.87	.67
Low Cost	.73	.50

[a]There was only one item in this subscale, therefore a reliability coefficient was not calculated.

Table 3

PrEP Barrier and Facilitator Endorsements: Overall and Across Subgroups

Variable	LMSM overall (N=256) *M* (SD)	LMSM by Age Group		LMSM by Immigration History[a]		
		18–39 years (N = 215) *M* (SD)	≥ 40 years (N = 41) *M* (SD)	US Born (N=118) Mean Rank	Established Immigrant (N = 93) Mean Rank	Recent Immigrant (N = 45) Mean Rank
Barriers						
1. Lack of PrEP Knowledge	2.43 (1.31)	2.41 (1.26)	2.50 (1.56)	123.32	129.10	140.83
2. PrEP Mistrust and Concerns	2.34 (0.95)	2.35 (0.98)	2.24 (0.79)	121.40	136.06	128.50
3. PrEP Costs and Insurance Issues	2.22 (1.37)	2.27 (1.37)	1.98 (1.33)	123.16	127.73	144.11
4. PrEP Privacy Concerns	2.04 (0.80)	2.06 (0.83)	1.96 (0.66)	128.84	131.75	120.90
5. Lack of Perceived Need or Urgency for PrEP	1.90 (0.87)	**1.96 (0.90)***	**1.59 (0.63)***	126.54	119.34	144.00
6. Clinic and Medical System Issues for PrEP	1.87 (0.81)	1.87 (0.82)	1.82 (0.79)	129.26	121.97	140.00
7. Lack of Culturally Competent PrEP Providers and Outreach	1.61 (0.90)	1.65 (0.93)	1.40 (0.73)	127.28	123.13	142.80
8. PrEP Stigma	1.56 (0.81)	1.58 (0.84)	1.42 (0.61)	127.20	129.18	130.50
9. Lack of Transportation	1.54 (1.15)	1.53 (1.15)	1.54 (1.16)	123.56	128.29	141.90
10. Negative PrEP Provider Demeanor	1.52 (0.97)	1.54 (0.99)	1.44 (0.82)	128.48	128.20	129.17
11. Negative Past Experience with PrEP	1.49 (1.14)	1.46 (1.13)	1.63 (1.24)	122.23	130.50	140.80
12. Immigration Concerns Regarding PrEP	1.38 (0.95)	1.39 (0.95)	1.37 (0.97)	**111.98***	**129.38***	**170.00***
13. Language Barriers to PrEP	1.27 (0.72)	1.27 (0.71)	1.30 (0.80)	**115.66***	**129.86***	**159.36***
Facilitators						
1. PrEP Affordability	4.32 (1.16)	**4.29 (1.09)***	**3.93 (1.45)***	126.11	131.88	124.90
2. Perceived Benefits of PrEP	4.26 (1.10)	4.32 (1.03)	3.97 (1.37)	121.22	134.92	134.92
3. PrEP Knowledge	4.09 (1.19)	4.12 (1.21)	3.89 (1.33)	124.00	128.96	139.37
4. PrEP Navigation Support	3.85 (1.23)	3.92 (1.21)	3.52 (1.30)	128.40	127.95	129.90
5. Positive Provider Demeanor	3.84 (1.33)	3.90 (1.29)	3.52 (1.51)	131.63	123.72	130.17
6. PrEP Altruism	3.81 (1.46)	3.86 (1.42)	3.54 (1.65)	125.35	124.67	144.68
7. Culturally Competent PrEP Providers	3.73 (1.40)	3.80 (1.40)	3.39 (1.41)	126.53	124.33	142.28
8. PrEP is Normalized	3.45 (1.24)	**3.52 (1.24)***	**3.08 (1.23)***	126.49	125.49	139.99
9. Incentive for PrEP	3.33 (1.71)	3.40 (1.68)	2.95 (1.83)	134.13	123.80	120.76

[a]We report mean ranks for the Immigration History groups.

Table 4

HIV Testing Barrier and Facilitator Endorsements: Overall and Across Subgroups

Variable	LMSM overall (N=256) *M* (SD)	LMSM by Age Group		LMSM by Immigration History[a]		
		18–39 years (N = 215) *M* (SD)	≥ 40 years (N = 41) *M* (SD)	US Born (N=118) Mean Rank	Established Immigrant (N = 93) Mean Rank	Recent Immigrant (N = 45) Mean Rank
Barriers						
1. HIV Testing Privacy Concerns	1.84 (0.79)	1.87 (0.81)	1.71 (0.71)	129.53	129.78	123.14
2. Lack of Perceived Need or Urgency for HIV Testing	1.70 (0.79)	**1.75 (0.82)****	**1.38 (0.51)****	138.40	123.03	113.84
3. HIV Testing Costs	1.66 (1.11)	**1.72 (1.16)***	**1.30 (0.70)***	121.81	131.20	140.47
4. Lack of HIV Testing Knowledge	1.60 (0.95)	1.63 (0.95)	1.48 (0.92)	121.19	130.39	143.74
5. Clinic and Medical System Issues for HIV Testing	1.59 (0.64)	**1.63 (0.65)****	**1.40 (0.53)****	128.75	126.59	131.81
6. HIV Testing Mistrust and Concerns	1.53 (0.74)	1.57 (0.75)	1.34 (0.66)	129.94	132.04	117.40
7. Lack of Transportation	1.51 (1.13)	1.55 (1.18)	1.29 (0.81)	130.08	121.88	138.06
8. HIV Testing Stigma	1.48 (0.72)	1.51 (0.73)	1.32 (0.65)	127.04	131.08	126.99
9. Lack of Culturally Competent HIV Testing Providers and Outreach	1.46 (0.76)	**1.51 (0.80)***	**1.21 (0.51)***	121.08	133.98	136.63
10. Immigration Concerns Regarding HIV Testing	1.30 (0.78)	1.31 (0.82)	1.20 (0.52)	**107.82*****	**134.08*****	**171.19*****
11. Negative HIV Testing Provider Demeanor	1.29 (0.78)	1.31 (0.77)	1.22 (0.65)	127.25	126.09	136.76
12. Language Barriers to HIV Testing	1.19 (0.67)	1.19 (0.65)	1.24 (0.79)	**117.40*****	**131.18*****	**152.07*****
13. Negative Past Experience with HIV Testing	1.18 (0.66)	1.19 (0.69)	1.15 (0.48)	125.57	129.68	131.81
Facilitators						
1. Perceived Benefits of HIV Testing	4.42 (0.87)	4.42 (0.87)	4.41 (0.87)	127.60	128.74	130.37
2. HIV Testing Altruism	4.16 (1.31)	**4.26 (1.21)****	**3.63 (1.66)****	125.07	131.82	130.63
3. HIV Testing Knowledge	4.15 (1.06)	4.19 (1.02)	3.95 (1.23)	**123.72***	**121.75***	**154.98***
4. HIV Testing Affordability	4.14 (1.18)	**4.24 (1.12)****	**3.65 (1.37)****	134.85	124.56	120.00
5. Culturally Competent HIV Testing Providers	4.05 (1.23)	4.08 (1.23)	3.89 (1.23)	126.64	133.05	123.98
6. Positive Provider Demeanor	4.04 (1.14)	**4.12 (1.07)***	**3.62 (1.38)***	130.44	125.36	129.89
7. HIV Testing Navigation Support	3.61 (1.31)	**3.70 (1.27)***	**3.15 (1.40)***	132.48	120.82	133.92
8. HIV Testing is Normalized	3.42 (1.23)	**3.52 (1.17)****	**2.91 (1.38)****	132.82	120.48	133.74
9. Incentive for HIV Testing	3.27 (1.77)	**3.40 (1.74)****	**2.56 (1.80)****	128.11	131.82	130.63

[a]We report mean ranks for the Immigration History groups.

Table 5

Most Highly Endorsed Barriers and Facilitators by Outcome

	PrEP	HIV Testing
Barriers	1. Lack of PrEP Knowledge	1. HIV Testing Privacy Concerns
	2. PrEP Mistrust and Concerns	2. Lack of Perceived Need or Urgency for HIV Testing
	3. PrEP Costs and Insurance Issues	3. HIV Testing Costs and Insurance Issues
	4. PrEP Privacy Concerns	4. Lack of HIV Testing Knowledge
	5. Lack of Perceived Need or Urgency for PrEP	5. Clinic and Medical System Issues for HIV Testing
Facilitators	1. PrEP Affordability	1. Perceived Benefits of HIV Testing
	2. Perceived Benefits of PrEP	2. HIV Testing Altruism
	3. PrEP Knowledge	3. HIV Testing Knowledge
	4. PrEP Navigation Support	4. HIV Testing Affordability
	5. Positive Provider Demeanor	5. Culturally Competent HIV Testing Providers

Note: the colors demonstrate which barriers are shared across HIV testing and PrEP. This table shows that many of the most highly rates barriers were the same for PrEP and HIV testing.