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Article

# Awareness and Intention to Use Long-Acting Injectable Pre-Exposure Prophylaxis (LAI-PrEP) Among Men Who Have Sex with Men in China

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## Abstract

**Purpose:** While oral PrEP has demonstrated efficacy, adherence remains suboptimal among adult MSM in China. Long-acting injectable PrEP (LAI-PrEP), such as Cabotegravir and Lenacapavir, offers a promise for closing this gap, but evidence on awareness and acceptability in Chinese populations is still limited. This study seeks to evaluate awareness and intention to use LAI-PrEP among MSM in China. **Methods:** We conducted an online cross-sectional study among adult MSM across China from November 2024 to February 2025. Participants who were recruited through community-based organizations and social media platforms completed a structured questionnaire measuring socio-demographics, sexual behaviors, and health-related behaviors. Multivariable logistic regression was used to explore the correlates of awareness and willingness. **Results:** A total of 1022 eligible MSM with a mean age of 29.6 years (SD = 7.61) completed the survey. Overall, 321 (31.4%) reported awareness of LAI-PrEP, while 706 (69.1%) expressed an intention to use it. Three-quarters (75.0%) of the participants identified as gay, and about four-fifths (82.0%) disclosed their sexual orientation to others. The majority (97.3%) of the participants had ever tested for HIV. Multivariable logistic regression showed greater awareness among participants with postgraduate education (aOR = 1.92, 95% CI 1.06–3.52), monthly income > \$1,110 (aOR = 2.26, 95% CI 1.40–3.73), self-identifying as gay (aOR = 1.52, 95% CI 1.06–2.21), having more than one casual partner (aOR = 1.61, 95% CI 1.05–2.49), and HIV testing (aOR = 3.58, 95% CI 1.21–15.40). Willingness to use LAI-PrEP was higher among participants with a college education (aOR = 1.56, 95% CI 1.02–2.39), higher income (\$420–1,110: aOR = 1.66, 95% CI 1.11–2.49 > \$1,110: aOR = 2.19, 95% CI 1.40–3.43), and having more than one casual male partner (aOR = 1.72, 95% CI 1.09–2.72). **Conclusion:** The substantial gap between awareness (31.4%) and willingness (69.1%) represents a critical implementation opportunity. Focusing on critical factors such as higher education, income levels, and sexual identity, public health campaigns can tailor their outreach efforts to engage individuals most likely to benefit from LAI-PrEP.

**Keywords:** pre-exposure prophylaxis (PrEP); men who have Sex with men (MSM); long-acting injectable PrEP (LAI-PrEP); awareness and intention; HIV; China

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## Introduction

The global incidence of new Human Immuno-deficiency Virus (HIV) infections has declined by 35% over the past 15 years. However, this trend is overshadowed by a rise in new infections among high-risk populations, including Men who have Sex with Men (MSM), Transgender Women and individuals within the Gay and Lesbian communities [1,2]. A large-scale systematic review conducted between 2001 and 2018 among Chinese MSM reported an estimated overall HIV prevalence of 5.7% (5.4-6.1%), with 19.8% aged 50 and above, and some cities reporting as high as 13.7%[3]. According to the 2022 United States HIV surveillance report, 67% of new HIV infections occurred among cisgender gay men with Black, Hispanic and Latine individuals accounting for over 70% of these cases[4,5].

Over the last decade, HIV Pre-Exposure prophylaxis (PrEP) has emerged as the most widely utilized preventive measure against HIV. Research has demonstrated that daily oral Tenofovir Disoproxil Fumarate–Emtricitabine (TDF–FTC)-based PrEP is highly effective when used correctly[6–9]. Nonetheless, global uptake of PrEP is minimal, with the Joint United Nations Program on HIV/AIDS projecting that about 16.5% of the estimated 21.2 million users will utilize PrEP by 2025[10]. The adherence to and uptake of PrEP are particularly limited among MSM, highlighting the urgent need for longer-acting alternatives that do not rely on daily oral administration[5,11]. A modeling study in Atlanta predicted that in the absence of oral PrEP approximately 95% of new HIV infections would occur between 2015 and 2024, while LAI-PrEP could lead to a 44% reduction in new infections[12,13].

Long-acting injectable Cabotegravir (CAB-LA) represents a significant advancement in HIV prevention for individuals at substantial risk[14]. It is administered via intramuscular injection once every eight weeks[15]. A double-blind, double dummy, non-inferiority trial in the United States demonstrated that CAB-LA outperformed daily oral TDF–FTC in preventing HIV infection among MSM and transgender women[15]. Additionally, Lenacapvir (LEN), a novel HIV-1 caspase inhibitor has been approved as a long-acting PrEP option, administered subcutaneously twice a year[16]. Since HIV vaccines are not yet available, LAI-PrEP (LEN) serves as a short-term HIV vaccine that can be injected twice per year. The 2024 International AIDS Conference highlighted LEN's efficacy in providing nearly 100% protection against HIV[17]. This new option is expected to further reduce the incidence of new HIV infections attributable to poor adherence to both oral PrEP and CAB-LA. In China, LAI-PrEP was approved for HIV treatment but has not been approved for HIV prevention, and its awareness remains substantially low among MSM[18]. LAI-PrEP has the potential to address adherence challenges, and it is suitable for high-mobility characteristics among MSM[18,19]

Despite growing global evidence for the efficacy of LAI-PrEP, no large-scale study has assessed awareness or willingness to use it among Chinese MSM. We anticipate that LAI-PrEP will be available in China soon, and a study on awareness and willingness is valuable. This gap is notable, particularly in the context of China's healthcare system and cultural background. Hence, this study aims to assess the level of awareness and intention to use LAI-PrEP among MSM.

## Methodology

### *Study Design and Participant Recruitment*

We conducted an online cross-sectional study among MSM from November 2024 to February 2025. The survey was administered anonymously via the Sojump platform (Wenjuanxing, <https://www.sojump.com/>). Community-based organizations (CBOs) and public health groups across multiple cities disseminated online recruitment posts through WeChat, utilizing both official accounts and moments to reach a nationwide convenience sample. Eligible participants were biologically male at birth, aged 18 years or older, and reported a history of sexual activity with other men. To ensure data integrity, we implemented stringent Quality Control and Quality Assurance (QA/QC) procedures. These included the removal of duplicate entries based on identical IP addresses or contact information, as well as the exclusion of questionnaires that did not pass an embedded attention-check question ("Please select number three"). Following these quality control measures,

the final analytic sample comprised 1,022 MSM participants. All individuals provided informed consent before initiating the survey. This study received ethical approval from the Shenzhen University Ethics Committee (Approval No.: PN-202400070).

#### *Data Collection*

The survey collected data on socio-demographic characteristics, sexual behaviors, health-related behaviors, and PrEP awareness and use. Socio-demographic variables included age, education level (high school or below, college, graduate or above), monthly income (<\$420, \$420–1110, >\$1110), marital status (single, engaged or married, divorced/separated/widowed), sexual orientation (gay, other), and sexual orientation disclosure (not disclosed beyond sexual partners, disclosed to others).

Sexual behavior variables included the number of regular and casual male sexual partners in the past six months, each categorized as none, one, or more than one. Other behavioral indicators included condomless sex in the past six months (yes/no), group sex participation (yes/no), and sex with female partners in the past six months (yes/no). Health-related variables included a history of HIV testing (ever tested: yes/no). For the analysis, two outcome variables were examined: awareness of long-acting injectable PrEP and intention to use LAI-PrEP (CAB-LA and LEN). All questionnaire items were self-reported and adapted from validated MSM studies. The survey was pilot-tested for clarity and comprehensiveness before implementation.

#### *Statistical Analysis*

All analyses were conducted in R (version 4.5.1). Participant characteristics were summarized descriptively: continuous variables as means with standard deviations and categorical variables as counts with percentages.

For each outcome—(i) awareness of long-acting injectable PrEP and (ii) intention to use long-acting injectable PrEP—we first fitted univariable logistic regression models for each candidate covariate and reported crude odds ratios (ORs) with 95% confidence intervals (CIs). We then estimated multivariable logistic regression models that included all pre-specified sociodemographic, sexual-behavior, and health-related covariates regardless of univariable significance, given the ample sample size and to minimize model-selection bias. Results are presented as adjusted odds ratios (aORs) with 95% CIs.

Multicollinearity was assessed using the variance inflation factor (VIF); values < 5 were considered indicative of no meaningful collinearity (in our data, all VIFs were  $\leq 1.5$ ). As a sensitivity analysis, we re-estimated the multivariable models after screening covariates using a liberal univariable threshold of  $p < 0.20$ ; findings were compared with the primary all-covariate models to evaluate robustness. All tests were two-sided with  $\alpha = 0.05$ .

## **Results**

A total of 1,022 MSM were included in the final analysis. Among all participants, 321 (31.4%) reported that they had heard of long-acting injectable PrEP, while 706 (69.1%) expressed an intention to use it.

#### *Participant Characteristics*

Table 1 summarizes the sociodemographic and behavioral characteristics of the participants included. The mean age was 29.6 years ( $SD = 7.6$ ). Most participants were single (87.7%), had attained a college education or higher (87.8%), and over one-third (36.1%) reported a monthly income exceeding USD 1,110. Three-quarters identified as gay (75.0%), and 82.0% had disclosed their sexual orientation beyond their sexual partners.

**Table 1. Characteristics of the included men who have sex with men in China, 2024 to 2025 (N=1022).**

Variable	N (%)
<b>Age (mean, SD)</b>	29.58 (7.61)
<b>Marital status</b>	
Single	896 (87.7)
Engaged or married	78 (7.6)
Divorced/Separated/Widowed	48 (4.7)
<b>Education</b>	
High School or below	125 (12.2)
College	739 (72.3)
Graduate or above	158 (15.5)
<b>Monthly income (USD, \$)</b>	
Less than \$420	136 (13.3)
\$420–1,110	517 (50.6)
More than \$1,110	369 (36.1)
<b>Sexual orientation</b>	
Others	255 (25.0)
Gay	767 (75.0)
<b>Sexual orientation disclosure</b>	
No	184 (18.0)
Yes	838 (82.0)
<b>Number of regular male sexual partners (past 6 months)</b>	
0	163 (15.9)
1	587 (57.4)
>1	272 (26.6)
<b>Number of casual male sexual partners (past 6 months)</b>	
0	308 (30.1)
1	398 (38.9)
>1	316 (30.9)
<b>Condomless sex with regular partner (past 6 months)</b>	

No	496 (48.5)
Yes	526 (51.5)
Condomless sex with casual partner (past 6 months)	
No	660 (64.6)
Yes	362 (35.4)
Group sex participation (past 6 months)	
No	789 (77.2)
Yes	233 (22.8)
Sex with female partner (past 6 months)	
No	889 (87.0)
Yes	133 (13.0)
Ever tested for HIV	
No	28 (2.7)
Yes	994 (97.3)

Regarding sexual behaviors in the past six months, 26.6% reported having more than one regular male partner, while 30.9% had more than one casual male partner. More than half (51.5%) reported condomless sex with a regular partner, and 35.4% had condomless sex with a casual partner. About 22.8% participated in group sex, and 13.0% reported having female sexual partners. Nearly all participants (97.3%) had been tested for HIV.

#### *Factors Associated with Awareness of Long-Acting Injectable PrEP*

In multivariable logistic regression, greater awareness was observed among participants with postgraduate education (aOR = 1.92, 95% CI 1.06–3.52) and those with a monthly income > \$1,110 (aOR = 2.26, 95% CI 1.40–3.73). Participants identifying as homosexual were more likely to be aware of long-acting injectable PrEP (aOR = 1.52, 95% CI 1.06–2.21). Having more than one casual male partner in the past six months was also associated with greater awareness (aOR = 1.61, 95% CI 1.05–2.49). Moreover, individuals who had ever been tested for HIV were substantially more likely to have heard of the intervention (aOR = 3.58, 95% CI 1.21–15.40). Table 2 presents detailed results of the logistic regression analysis on awareness.

**Table 2. Factors Associated with Awareness of Long-Acting Injectable PrEP among MSM in China, 2024 to 2025 (N=1022).**

Variable	N=1022	
	OR(95CI)	aOR(95CI)
Age	1.00 (0.99–1.02)	1.00 (0.97–1.02)
<b>Marital status</b>		

Single	Ref.	Ref.
Engaged or married	0.89 (0.53–1.46)	1.08 (0.58–1.97)
Divorced/Separated/Widowed	0.71 (0.35–1.35)	0.79 (0.36–1.65)
<b>Education</b>		
High School or below	Ref.	Ref.
College	1.96 (1.24–3.21)**	1.61 (0.99–2.71)
Graduate or above	2.72 (1.59–4.77)***	1.92 (1.06–3.52)*
<b>Monthly income (USD, \$)</b>		
Less than \$420	Ref.	Ref.
\$420–1,110	1.41 (0.91–2.25)	1.41 (0.89–2.28)
More than \$1,110	2.50 (1.60–4.01)***	2.26 (1.40–3.73)**
<b>Sexual orientation</b>		
Others	Ref.	Ref.
Gay	1.59 (1.15–2.20)**	1.52 (1.06–2.21)*
<b>Sexual orientation disclosure</b>		
No	Ref.	Ref.
Yes	1.47 (1.03–2.13)*	1.27 (0.86–1.89)
Number of regular male sexual partners (past 6 months)		
0	Ref.	Ref.
1	1.07 (0.73–1.57)	1.17 (0.74–1.88)
>1	1.37 (0.90–2.09)	1.05 (0.64–1.75)
Number of casual male sexual partners (past 6 months)		
0	Ref.	Ref.
1	0.80 (0.58–1.12)	0.92 (0.62–1.35)
>1	1.39 (1.00–1.94)	1.61 (1.05–2.49)*
Condomless sex with regular partner (past 6 months)		
No	Ref.	Ref.

Yes	1.03 (0.79–1.35)	1.03 (0.71–1.48)
Condomless sex with casual partner (past 6 months)		
No	Ref.	Ref.
Yes	0.87 (0.66–1.15)	0.77 (0.52–1.15)
Group sex participation (past 6 months)		
No	Ref.	Ref.
Yes	1.02 (0.74–1.39)	0.94 (0.65–1.34)
Sex with female partner (past 6 months)		
No	Ref.	Ref.
Yes	0.82 (0.54–1.22)	1.24 (0.75–2.01)
Ever tested for HIV		
No	Ref.	Ref.
Yes	3.92 (1.36–16.55) *	3.58 (1.21–15.40) *

\*\*\*p < 0.001, \*\*p < 0.01, \*p < 0.05.

#### *Factors Associated with Intention to Use Long-Acting Injectable PrEP*

Willingness to use long-acting injectable PrEP was higher among participants with a college education (aOR = 1.56, 95% CI 1.02–2.39, p < 0.05) and among those with higher income (\$420–1,110: aOR = 1.66, 95% CI 1.11–2.49, p < 0.05; > \$1,110: aOR = 2.19, 95% CI 1.40–3.43, p < 0.001). Participants identifying as gay were also more likely to express willingness to use LAI-PrEP compared with others (aOR = 1.52, 95% CI 1.06–2.21, p < 0.05). Additionally, participants reporting more than one casual male partner in the past six months were also more likely to express willingness to use injectable PrEP (aOR = 1.72, 95% CI 1.09–2.72, p < 0.05). Detailed results are presented in Table 3.

**Table 3. Factors Associated with Intention to Use Long-Acting Injectable PrEP among MSM.**

Variable	N=1022	
	OR(95CI)	aOR(95CI)
<b>Age</b>	0.99 (0.97–1.00)	0.98 (0.96–1.00)
<b>Marital status</b>		
Single	Ref.	Ref.
Engaged or married	0.78 (0.48–1.28)	1.03 (0.58–1.88)
Divorced/Separated/Widowed	0.87 (0.48–1.65)	1.24 (0.61–2.59)
<b>Education</b>		
High School or below	Ref.	Ref.

College	1.93 (1.30–2.84) ***	1.56 (1.02–2.39)*
Graduate or above	1.51 (0.93–2.45)	1.12 (0.65–1.93)
<b>Monthly income (USD, \$)</b>		
Less than \$420	Ref.	Ref.
\$420–1,110	1.61 (1.09–2.38)*	1.66 (1.11–2.49)*
More than \$1,110	2.14 (1.42–3.24) ***	2.19 (1.40–3.43) ***
<b>Sexual orientation</b>		
Others	Ref.	Ref.
Gay	1.59 (1.15–2.20) **	1.52 (1.06–2.21)*
<b>Sexual orientation disclosure</b>		
No	Ref.	Ref.
Yes	1.31 (0.97–1.76)	1.19 (0.84–1.67)
Number of regular male sexual partners (past 6 months)		
0	Ref.	Ref.
1	0.81 (0.55–1.17)	0.76 (0.48–1.20)
>1	1.43 (0.92–2.21)	0.89 (0.53–1.49)
Number of casual male sexual partners (past 6 months)		
0	Ref.	Ref.
1	0.99 (0.72–1.35)	0.92 (0.63–1.34)
>1	2.12 (1.48–3.04) ***	1.72 (1.09–2.72)*
Condomless sex with regular partner (past 6 months)		
No	Ref.	Ref.
Yes	1.38 (1.06–1.81)*	1.25 (0.87–1.80)
Condomless sex with casual partner (past 6 months)		
No	Ref.	Ref.
Yes	1.54 (1.16–2.06) **	1.16 (0.76–1.75)
Group sex participation (past 6 months)		
No	Ref.	Ref.

Yes	1.47 (1.06–2.06) *	1.08 (0.74–1.58)
Sex with female partner (past 6 months)		
No	Ref.	Ref.
Yes	0.86 (0.59–1.27)	0.98 (0.62–1.57)
Ever tested for HIV		
No	Ref.	Ref.
Yes	1.98 (0.92–4.21)	2.06 (0.92–4.53)

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05. Note: Results were robust in parsimonious models that included predictors with p<0.20 from the univariable screen: the direction and magnitude of key associations (education, income, >1 casual partner, and HIV testing) were materially unchanged, and no additional covariates became significant with opposite effects. Full outputs are provided in Table S1 (awareness) and Table S2 (intention).

## Discussion

Awareness and willingness to use LAI-PrEP among MSM are essential in ensuring its availability, accessibility, and adoption within the population, especially given that LAI-PrEP is expected to be available soon in China. This study extended the existing literature by highlighting LAI-PrEP as a potential short-term solution to HIV preventive efforts in the absence of an HIV vaccine, providing significant insights into the potential for increased uptake and adherence for those willing to use LAI-PrEP and informing policymakers on its acceptance, thereby guiding its availability and implementation. The study reveals that just 31.4% of the participants are aware of LAI-PrEP, yet 69.1% are willing to use it. The study also identifies key factors linked to both awareness and intention to use LAI-PrEP, such as identifying as gay, having multiple sexual partners, and getting tested for HIV.

Our research found that 31.4% of the participants had heard of LAI-PrEP, while 69.1% expressed a willingness to use it. A PROTECT survey conducted among MSM in Europe indicated a strong interest in LAI-PrEP, with current MSM PrEP users demonstrating higher levels of interest and intent to use the treatment [20]. Our study showed a similar result with high willingness and intent to use LAI-PrEP among participants. These findings suggest that prior experience with PrEP may influence readiness to use LAI-PrEP, while lack of previous exposure to PrEP options may influence low awareness. A similar study conducted in the Netherlands reported that while awareness of LAI-PrEP was low (40%), there was high interest (83%) and intention to use it (63%) among participants[21]. This study indicated that awareness was significantly higher while willingness was lower compared to our findings. This suggests that with better awareness efforts and information, participants are generally willing to adopt LAI-PrEP. In the USA, 75% of MSM respondents expressed a willingness to opt for LAI-PrEP over daily oral PrEP [22]. This conclusion parallels our study results indicating a high willingness, potentially due to more robust healthcare systems advocating for LAI-PrEP or cultural factors. Comparable research in China revealed generally low awareness of PrEP among MSM. One study noted awareness levels of 33% for oral PrEP, 30.7% for on-demand PrEP, and just 7.1% for LAI-PrEP, although overall willingness to use any effective and free PrEP was 84.9% [23–25]. Other studies in China found awareness rates of 66.3% and 88.71% for PrEP, with willingness to use rates of 66.7% and 74%[26,27]. This disparity in LAI-PrEP awareness and willingness in China highlights that a general desire to access effective HIV prevention methods is strong among MSM. Overall, our findings suggest that LAI-PrEP is a welcome tool for MSM who struggle with adherence to daily oral PrEP, highlighting the necessity for enhanced education and awareness initiatives within this demographic[22].

Our research identified a correlation between higher education and income levels with both awareness and willingness to use LAI-PrEP. This finding is consistent with existing literature. For example, a study conducted in Baltimore indicated that individuals with higher education attainment and income are more likely to be aware of and willing to use PrEP[28]. Additionally, other studies in the U.S. also demonstrated that higher education and income are linked to increased awareness of PrEP, which may also apply to LAI-PrEP [29,30]. Higher socioeconomic status and education may provide individuals with the financial means to afford PrEP-related costs, access relevant information, and possess better health literacy[31,32]. However, previous studies conducted in mainland China found opposite results, which revealed that MSM with higher education levels were less likely to express a willingness to use LAI-PrEP[27,33]. A qualitative study in China indicated that highly educated MSM and those with a high social standing have varying trust in the health system, especially if they have had a negative experience, and this reduces their willingness to seek HIV preventive services due to confidentiality concerns[19]. Furthermore, highly educated and financially secure MSM may have alternatives or prioritize various HIV preventive strategies or perceive their risk of HIV lower than those with low income and education levels[19]. These findings suggest that differences in socio-economic conditions, healthcare systems, cultural values, and environment influence the willingness and acceptability of LAI-PrEP among highly educated and affluent MSM.

This study also found that identifying as gay is associated with greater awareness and intention to use LAI-PrEP [34]. A national probability study in the US conducted between 2016 and 2018 among gay and bisexual men showed an increased awareness from 59.8% to 90% and increased PrEP use by 90%. [35] A qualitative study in the U.S. found that Black sexual minority men found LAI-PrEP to be highly acceptable due to its convenience and ease to use [36]. A study in Kenya reported that 64.3% of gay, bisexual, and other MSM (GBM) heard of PrEP, and 44.9% were willing to use it[37]. Another study indicated that among gay, bisexual, and other MSM currently using oral PrEP, approximately half have heard of LAI-PrEP, with 30.8% preferring it[38]. A similar study in China among GBM also showed that 67.1% of the participants were willing to use PrEP[39]. While many studies highlight a positive association between identifying as gay and awareness and interest in LAI-PrEP, it is essential to consider other influencing factors such as individual risk perception, healthcare access and concerns about side effects [40].

This study highlighted that individuals having multiple sexual partners are more willing to use LAI-PrEP. This is in line with studies in the USA and China that demonstrated that participants who report multiple sexual partners express willingness to use LAI-PrEP, which was mostly attributed to higher perceived risk of HIV infection [25,27,41,42]. Additionally, a study among adolescent girls and young women in Uganda showed that those with multiple sexual partners were inclined to use LAI-PrEP compared to those with a single partner [43] and that individuals with multiple partners may also be less likely to use condoms consistently, which further increases their willingness to utilize PrEP [25,44]. In general, having more than one partner is connected to greater awareness and willingness to use LAI-PrEP, likely due to the perceived risk of HIV infection. There is a pressing need for tailored education and awareness campaigns to ensure that people at high risk of HIV infection are informed about PrEP options.

The study also indicated that awareness of LAI-PrEP is linked to HIV testing. Regular HIV testing is closely connected to both awareness and willingness to use LAI-PrEP [45]. Current guidelines require a negative HIV test before starting PrEP to prevent drug resistance in individuals already infected with HIV. Regular HIV testing is a crucial part of ongoing PrEP care, with recommended testing intervals of every three months for oral PrEP and every two months for LAI-PrEP users [46,47]. This implies that MSM who frequently get tested for HIV are more likely to recognize PrEP as an effective prevention method and that HIV testing services serve as a vital access point for PrEP education and promotion[48]. However, studies have revealed that adherence to HIV testing schedules among PrEP users is suboptimal(34,36), highlighting the need to improve compliance within this group [49]. Integrating PrEP services directly into HIV testing programs has shown promise in enhancing PrEP access and uptake[50,51] as linking those who test negative for

HIV directly to PrEP services can foster prevention efforts[52]. These findings collectively emphasize the importance of promoting routine HIV testing alongside targeted PrEP education to optimize HIV prevention strategies.

## Implications

The findings of this study are highly relevant for public health initiatives designed to improve HIV prevention among MSM. The low level of awareness and strong intent to use LAI-PrEP show how important it is to have focused educational initiatives that inform the MSM community about this preventive intervention. By focusing on critical factors such as higher education, income levels, and sexual identity, public health campaigns can tailor their outreach efforts to engage individuals most likely to benefit from LAI-PrEP. Furthermore, conversations regarding the integration of LAI-PrEP into current sexual health services and HIV testing initiatives may enhance its adoption. Ultimately, these data indicate that enhanced awareness and acceptance of LAI-PrEP could substantially diminish the HIV transmission rate among this community, hence fostering improved public health outcomes.

## Limitations

Our study has several limitations. Firstly, due to the fact of the online survey, our samples may be biased, and our participants tend to be young, highly educated, and with higher income. Secondly, the reliance on self-reported data may introduce bias, as participants could exaggerate their readiness to utilize LAI-PrEP due to social desirability. Thirdly, the study did not investigate the root causes for lack of awareness or the specific barriers to obtaining LAI-PrEP, which could provide deeper insights into the challenges faced by the community. Finally, the cross-sectional approach limits the capacity to ascertain causal links between identified determinants and the outcomes, indicating the necessity for longitudinal research to gain a more comprehensive understanding of the dynamics across time. These limitations underscore the necessity for further study to corroborate these findings and investigate additional factors affecting LAI-PrEP uptake among MSM.

## Conclusion

This study highlights the importance of enhancing awareness and advocating for the utilization of LAI-PrEP among MSM. Notwithstanding the low awareness of 31.4%, the substantial readiness to utilize LAI-PrEP at 69.1% suggests better campaign strategies to generate the demand for LAI-PrEP among MSM in China. Crucial elements, including education, income, sexual identity, and HIV testing behaviors, correlate with both awareness and willingness. Focused outreach and education will enhance accessibility and eventually improve HIV prevention initiatives within this demographic.

**Supplementary Materials:** The following supporting information can be downloaded at the website of this paper posted on Preprints.org.

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