

Assessment of Acceptability of Pre-exposure Prophylaxis for HIV Prevention Among Men Who Sex with Men and Transgender Community in Pakistan

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ABSTRACT

Objective: To assess the level of acceptability of oral pre-exposure prophylaxis (PrEP) among men who have sex with men (MSM) and transwomen (TW) in Pakistan.

Study Design: Cross-sectional study.

Place and Duration of the Study: Online study portal from September to November 2021.

Methodology: The study participants were recruited through snowball sampling. Consenting individuals who were ≥ 13 years and were identified as MSM or TW were included in the study. Data were analysed using SPSS version 25. Frequencies, percentages and correlation coefficients were computed.

Results: A total of 347 participants were recruited. The mean age of all participants was 29.8 ± 6.7 years. Fifty-eight (19.7%) of the participants had chemsex with amphetamine-type stimulants (ATS) at least once in preceding six months of the study, and 58 (19.7%) had a sexually transmitted infection (STI) in preceding six months whereas 10 (3.4%) participants had used drugs *via* injection. Two hundred and thirty-eight (72%) of the participants were aware of PrEP, 30 (11.7%) had used PrEP in the past, and 3.88% were currently using PrEP. The willingness to use PrEP, free of cost, was shown by 300 participants (86.45%) and by 180 (54.5%), if available at a low cost.

Conclusion: There was a high prevalence of risk factors posing them at considerable risk of human immunodeficiency virus (HIV). The majority was aware of PrEP for HIV prevention. The willingness to use PrEP was high when PrEP was offered free of cost but dropped down when participants were asked to pay for PrEP. Based on this finding, PrEP should be available free of cost at the community preferred outlets.

Key Words: Gay, Men who have sex with men, HIV, Pre-exposure prophylaxis Pakistan, Transwomen, Chemsex, People living with HIV.

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INTRODUCTION

Overall, the incidence of human immunodeficiency virus (HIV) infection and related deaths are decreasing after peaking almost two decades ago. The global trend of a decrease in new infections can be attributed to biomedical interventions such as antiretroviral (ARV) drugs and structural interventions which include; destigmatising people at risk of HIV and empowering social frameworks.¹

From 2010-2020, there has been 31% decrease in incident HIV cases, globally. However, the decrease in incidence is not uniform. In contrast, the Asia-Pacific region has seen only 12% decrease in HIV infections. In the region HIV epidemic is increasing in countries like Pakistan (84%) and Philippines (237%) since 2010 baseline.²

United Nations Joint Programme on AIDS (UNAIDS) Country Report 2023 estimates that there are 210,000 people living with HIV (PLHIV) in Pakistan. According to the UNAIDS Global AIDS Monitoring Report 2020, 52% of infections occur among HIV key population (KP) groups and another 47% occur among their partners or population with behavioural risk factors. Of the PLHIV pool, 25% infections are in men who have sex with men (MSM) community, 24% in people who inject drugs (PWID), 2% among transgender (TG) and 2% among female sex workers (FSW).³ In the last two rounds of integrated biological and behavioural surveillance (IBBS 2011 and 2017), the prevalence has changed

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from 37.8% to 38.2% among PWID and 7.2% to 7.1% in TG community.^{4,5} However, the infection is on the rise among MSM. Furthermore, since one-fifth of this population is married, the infection can possibly spill from this community to the general community. Even with these increasing numbers, the coverage of KP-focused prevention programmes is less than 10%.³

Pre-exposure prophylaxis (PrEP) is the use of ARVs in HIV-negative individuals at a substantial risk of acquiring HIV infection from sexual transmission. Overall, it offers above 90% protection against HIV from sexual transmission.⁶

WHO recommends various formulations of PrEP depending on biological sex and the use of gender reaffirming hormones. These include oral PrEP, either daily or event-driven, and dapivirine vaginal ring. The Food and Drug Administration (FDA), USA has approved the use of cabotegravir long-acting (CAB LA) injectable form as PrEP once in every eight weeks.⁷ WHO has recently approved CAB LA as PrEP among oral and vaginal PrEP formulations.^{8,6}

Pakistan has shown some commitment to PrEP in the recent years as it has published the national PrEP guidelines in 2019 with technical support from WHO Country Office. The guidelines were endorsed by the National Institute of Health (NIH) and the Infectious Disease Society of Pakistan (IDSP).⁹ Currently, oral PrEP is available at a small scale in two HIV clinics, namely Pakistan Institute of Medical Sciences (PIMS), Islamabad and Aga Khan University Hospital, Karachi (National AIDS Control Program). With financial support of Global Fund, the country aims to provide nearly 20,000 people with PrEP services mostly to male sex workers (MSW), MSM and TG by 2023.¹⁰ A small demonstration project is also planned for FSW.¹⁰ The current research is a part of a broader exercise to generate evidence and translate it into Standard Operating Procedures (SOPs) for community-sensitive and community-centred PrEP services in the country.

The primary aim of this study was to assess the level of acceptability of oral PrEP among MSM and TG. The secondary aims were to determine the factors associated with willingness to take PrEP and explore the potential of PrEP implementation in Pakistan.

METHODOLOGY

The study was conducted with the financial and technical support of the WHO, Country Office, Pakistan. The study was conducted from September to November 2021.

For this study, an ethical approval was taken from Bridge Consultant Foundation, Karachi, Pakistan prior to study roll-out.

A cross-sectional research design was employed. A structured pre-tested questionnaire was administered online among the targeted communities of MSM and TW using an online operational version of the survey designed by a third party. The participants were recruited through snowball sampling, community groups on Facebook and Instagram, and community-based organizations (CBOs).

The survey questionnaire was developed based on a similar study conducted in Vietnam (unpublished). The survey questionnaire consisted of the following sections:

- Eligibility for the PrEP survey;
- General information on basic demographics;
- Risk assessment for PrEP;
- Knowledge on oral PrEP;
- Preferences for PrEP;
- Willingness to pay for PrEP

Informed consent was taken from the study participants for the inclusion in the study. The consent explicitly stated that data shall be analysed and published for the scientific community, however, personally identifiable information will not shared or published in any form. Consenting participants were included in the study if they were of age ≥ 13 ; and identified as one of the following: gay, bisexual man or MSM; man who has sex with TW or *Khawaja sira* or *Hijra*; *Khawaja sira / Hijra* or TW; and HIV negative as indicated by a test (not older than 6 months). The HIV test is done as a part of HIV prevention programme through CBOs which provides free of cost HIV services to their clients.

A sample size for the online survey was set using Cohen's rule of thumb which states that there should be 5-10 participants per variable for a cross-sectional study design to reach a reasonable statistical power. Overall, the authors used nearly 30 variables and aimed to recruit 300-350 participants for the survey. The sampling technique was purposive convenient sampling using snowballing technique by requesting the study participants to recruit more participants.

Data were imported from the web-based survey in Microsoft Excel Sheet. Data were initially cleaned and ineligible entries were deleted. The file was imported into IBM Statistical Package for Social Sciences Version 26.0. Variables values were labelled and sorted into nominal, ordinal and scale on the basis of type. Only descriptive statistics, *i.e.* frequencies and percentages for response variables, were calculated.

RESULTS

A total of 347 participants were recruited. The mean age of all the participants in the survey was 29.8 ± 6.7 years (range: 18-67 years). The sociodemographic characteristics of the study participants are shown in Table I.

A summary of behavioural characteristics related to the risk of acquiring HIV infection is shown in Table II.

The authors asked the study participants about the most common methods employed for cruising sex partners, with the option of choosing more than one option. Majority (228, 65.7%) used Grindr, Tinder and other online dating apps, followed by social media such as TikTok, Instagram, and Facebook (130, 34.7%) and a similar number (130, 34.7%) resorted to cruising sex partners at public places such as parks and roadside. About 101 (29.1%) had found a sex partner *via* another community friend while only 4 (1.1%) had found sex partners through the *dera* of a TW.

Table I: Socio-demographic characteristics of the participants.

Characteristics	Frequency (n=347)	Percent (%)	
Age (years)	Information not available	17	4.90%
	13-19	6	1.72%
	20-24	59	17.88%
	25-29	119	36.06%
	30-49	142	43.03%
	50 and above	4	1.21%
Gender	Information not available	15	4.32%
	Male	308	92.77%
	Transgender man (female-to-male)	2	0.60%
	Transgender woman (male to female)	22	6.63%
Residence	Information not available	15	4.32%
	Rural	8	2.41%
	Urban	324	97.59%
Education level	Information not available	15	4.00%
	Primary School (Grade 1-5)	2	0.60%
	High School (10-12)	34	10.24%
	University education or vocational trainings	168	50.60%
	Post-graduate	128	38.55%
Marital status (married to female)	Information not available	15	4.32%
	Yes	66	19.88%
	No	266	80.12%
Occupation	Information not available	15	4.32%
	Unemployed	22	6.63%
	Professional/ Officer work	234	70.48%
	Sex worker	2	0.60%
	Skilled Labor	8	2.41%
	Student	46	13.86%
	Other	20	6.02%
	Information not available	22	6.34%
Monthly income	20000 or less	36	13.79%
	20,001-40,000	61	23.27%
	40,001-70,000	68	26.52%
	70001 to 100000	64	24.52%
	100,001-200,000	32	12.26%
	Information not available	17	4.90%
Work in HIV sector	No	230	69.28%
	Yes	100	69.28%
	Information not available	15	4.32%
Internet use	Almost every day	324	97.59%
	At least once a week	6	1.81%
	Less than once a week	2	0.60%
	Information not available	15	4.32%
Internet source	Home Wifi	142	42.77%
	Mobile data	176	53.01%
	Workplace	8	2.41%
	Other sources	6	1.81%
	Information not available	15	4.32%
	Information not available	15	4.32%

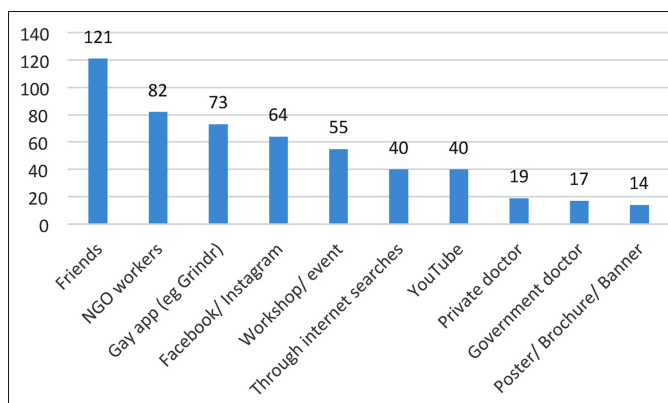


Figure 1: Places where the respondents first heard about pre-exposure Prophylaxis.

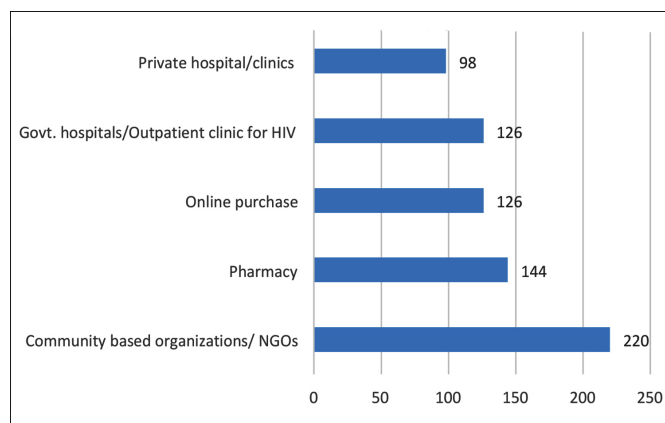


Figure 2: Facility preferred by participants for access to PrEP.

Table II: Behavioural characteristics related to the risk of acquiring HIV infection.

Characteristics	Frequency (n=347)	Percent (%)	
Sexual Partner outside marriage	Information not available	15	4.32%
	I have casual hook ups	138	41.57%
	Prefer not to say	28	8.43%
	Yes	92	27.71%
Gender of the sexual partner in the last six months	No	74	22.29%
	Information not available	19	5.48%
	Men only	288	87.80%
	Men and Khawaja Sira / TW	2	0.61%
	Men and Women	22	6.71%
	Men, Women and Khawaja Sira / TW	6	1.83%
	Khawaja Sira / TW	8	2.44%
Average number of sexual partners per month in the last six months	Women and Khawaja Sira / TW	2	0.61%
	Information not available	77	22.19%
	0	2	0.74%
	1 to 5	224	82.96%
	6 to 10	28	10.37%
Average number of casual hook- ups per month	11 or more	16	5.93%
	Information not available	46	13.26%
	0	135	44.85%
	1 to 5	148	49.17%
	6 to 10	14	4.65%
Average number of times per month had receptive anal sex without condom	11 or more	4	1.33%
	Information not available	89	25.65%
	0	108	41.86%
	1 to 5	110	42.64%
	6 to 10	28	10.85%
Average number of times per month had insertive anal sex without condom	11 or more	12	4.65%
	Information not available	77	22.19%
	0	96	38.25%
	1 to 5	131	52.19%
	6 to 10	36	14.34%
Number of sexual partners who were HIV positive in the last six months	11 or more	7	2.79%
	Information not available	51	14.70%
	> 1 positive partners	8	2.31%
	0 positive partner	116	33.43%
	1 positive partner	10	2.88%
Number of times condoms were used during sex with HIV positive partner	Don't know	162	46.69%
	Information not available	329	94.81%
	0 time	6	33.33%
	1 to 4 times	8	44.44%
Number of times condoms were used during receptive anal sex with HIV positive partner	5 or more times	4	22.22%
	Information not available	65	18.73%
	0 times	248	87.94%
	1 to 4 times	28	9.93%
Had chemsex with amphetamine type stimulants (ATS) in the last six months	5 or more times	6	2.13%
	Information not available	51	15.27%
	No	238	80.95%
Injected drugs for recreational purposes	Yes	58	19.73%
	Information not available	53	15.27%
	No	284	96.60%
Did sex work in the last six months	Yes	10	3.40%
	Information not available	53	15.27%
	No	242	82.31%
Had diagnosis of sexually transmitted infection (STI) in the last six months	Yes	52	17.69%
	Information not available	55	18.71%
	No	234	79.59%
Used post-exposure prophylaxis (PEP) in the last six months	Yes	58	19.73%
	Information not available	51	14.70%
	No	272	91.89%
Facility used for HIV, STI services in last one year	Yes	24	8.11%
	Information not available	51	14.70%
	Government facility	40	13.51%
	Have not availed yet	118	39.86%
	NGO	98	33.11%
Self-assessment of HIV acquiring risk on scale of 1-10 (1 is lowest and 10 is highest)	Private Lab or doctor	40	13.51%
	Information not available	51	14.70%
	1 (No risk)	78	26.35%
	10 (High risk)	12	4.05%
	2 to 5	156	52.70%
	6 to 9	50	16.89%

Table III: Knowledge and willingness to pay for oral PrEP for HIV prevention.

Characteristics		Frequency (n=347)	Percent (%)
Before this survey, have you ever heard about PrEP?	Information not available	17	4.90%
	No	92	27.88%
	Yes	238	72.12%
Before this survey have you ever heard about PEP	Information not available	19	5.48%
	No	76	23.17%
	Yes	252	76.83%
Used PrEP or PEP in the past	Information not available	91	26.22%
	Both	8	3.13%
	No	206	80.47%
	PEP	20	7.81%
	PrEP	22	8.59%
Willingness to use PrEP if available free of cost?	Information not available	14	4.03%
	Yes	300	86.45%
	No	33	9.51%
Willingness to pay out of your pocket for PrEP services and medications?	Information not available	17	4.90%
	No	150	45.45%
	Yes	180	54.55%
	Maximum amount in Pakistani rupees (PKR) participants can pay for PrEP service	20- 500	36
	501- 1000	40	28.99%
	1001- 2000	24	17.39%
	2001-4000	16	11.59%
	5000 or more	22	15.94%

The survey also asked the respondents about knowledge of PrEP, the results of which are given in Table III.

On average, 76 (55%) participants proposed less than PKR 1000 as acceptable monthly charges for PrEP services (Table III).

Figure 1 shows the initial sources from where participants had heard about PrEP. Non-governmental organisations (NGOs), workshops, and online means such as social media and dating apps are two main clusters which first introduced the community to PrEP.

Among those refusing to use PrEP (n=33), 9 cited worry about the side effects as the main reason for not using PrEP, followed by 8 who believed that condoms provided sufficient protection and 7 who did not perceive themselves at a risk of acquiring HIV.

In terms of access to the site of PrEP services, majority of the participants preferred CBO sites, followed by pharmacy and online purchases (Figure 2).

DISCUSSION

For the past one decade, Pakistan is implementing prevention programme through CBOs with support of the Global Fund. The coverage has been low before 2018. Since 2018, the country has scaled up its prevention coverage, but the country lagged far behind the Fast Track 2020 targets.¹⁰ The CBOs rely on the conventional outreach through snowballing. The last Integrated Biological and Behavioural Surveillance (IBBS) in Pakistan was conducted in 2016-17.⁵ However, since then, there is a change in the community dynamics and shift from the conventional client cruising means to online dating applications and social media. This is the first study conducted since the IBBS 2016-17, and the

study reports that MSM and TW preferred digital platforms for client cruising. The study participants preferred gay dating apps and had casual hook-ups as opposed to relationships. This population is representative of socially well-off MSM and TW class who had access to the online means, years of schooling, and 60% of the sample had an income of about PKR 40,000. It was hypothesised that among lesser privileged and lesser educated MSM, a shift towards the digital dating apps may be less stark. It is safe to assume that implementation of digital outreach means will have additional coverage in a particular geographical area. These findings highlight the need of strengthening community outreach with digital outreach mechanisms. Furthermore, community members using these dating apps may not be able to read text messages in English, and visual or video messaging may have a more impactful outreach. An innovative solution can be interactive methods with online counselors using toll-free numbers. Digital outreach is now an upcoming method of reaching HIV KPs, chiefly the MSM community. Most of the research comes from the Global North or countries with more validating socio-cultural environment for these communities. A recent meta-analysis of randomised control trials (RCT) has concluded 1.5 timer higher uptake of HIV self-testing (HIVST) as compared to those who are not outreached through such means.¹¹ Another systematic review which included observational studies with RCTs reported web-based innovation as highly acceptable (77%-97%), feasible (93%-95%) and effective in linking to services (53% to 100%) for HIVST.¹² The impact of digital outreach is not limited to HIVST and a number of programmes have used this technique with considerable success for promoting PrEP and HIV prevention and linking to PrEP provision centres.¹³⁻¹⁵ There is a growing importance of digital interventions for HIV prevention in the context of

the recent COVID-19 pandemic.¹⁶⁻¹⁸ Previously, Thailand has successfully run a project of online outreach, E-counselling and testing, followed by PrEP initiation in those eligible and motivated.¹⁹

Though PrEP has never been introduced in Pakistan as an essential part of combination HIV prevention, and there has been no formal demand generation campaigning yet, 72% of the participants had heard about PrEP from more than one source. The means from which participants heard about PrEP could be clubbed into two categories. Firstly, through peer groups, friends, NGO workers, and NGO-supported workshops/events, which gave an opportunity for peer-to-peer learning. Secondly, the online sources, of which Grindr followed by Facebook, were the most popular means. Community-based PrEP service models have achieved good uptake among KPs, which included better retention and more than 90% adherence to at least 4 pills per week among MSM.²⁰ Success of community-based PrEP promotion and provision can be attributed to factors such as enabling and welcoming environment, non-stigmatising and non-judgmental approach.²¹ Lau *et al.*, has recently published a review of the service delivery models in the Asia-Pacific region. The authors concluded that free community setting model is the most popular in the Asia-Pacific region. Though, it should be noted that most of the community led models were implemented in Thailand.²¹

The MSM and TW community is using amphetamine-type stimulants (ATS) for recreational purposes during sex. However, there was no epidemiological statistics for this conclusion before this study which can now delineate the trends of use of ATS for chemsex.

This study has found that 19.73% of the participants had used ATS in the last six months. ATS is known to increase the risk of HIV, engage in risky sex, prolonged sex, increased number of partners and lower rates of condom use.²²⁻²³ A recent study from Vietnam has reported that 30.4% of MSM used ATS.²⁴ Most of the studies on ATS use have focused on PLHIV and were conducted in the high-income countries.²⁵ The authors propose that PrEP providers should be trained on psychosocial counselling and support, principles of harm reduction for dealing with community members using ATS. In contrast to ATS use, the number of participants who had used injectable drugs for recreation was 3.4%. The IBBS 2017 concluded that 2.6% of the TW and 4.2% of the MSM had drug use *via* injections (IDU) in the preceding 12 months.⁵ Hence, it was concluded that the prevalence of IDU remains stable.

The major limitation of the study includes a cross-sectional study design. The sampling was purposive and employed an online means for access to the survey participants. Secondly, the survey participants were recruited with the help of CBOs and snowball sampling by those participating in the survey. The participants were approached through the

online means, and hence had a preference for providing PrEP information and services through online and digital platforms. These limitations warrant caution for generalising the findings of the study. However, the survey does provide baseline assessment which may be used in the future for assessing and evaluating PrEP demand generation programmes, community uptake, and knowledge about PrEP and risk profile.

CONCLUSION

There was a high prevalence of risk factors among MSM and TW posing them to considerable risk of acquiring HIV infection. A majority of the participants were also aware of PrEP for HIV prevention. However, due to the non-availability of PrEP in HIV prevention services offered by CBOs, only a small portion was using PrEP. The other factor limiting the use of PrEP in the future can be its availability at a monetary cost. A free and easy availability of PrEP will improve uptake when services are rolled out. Another key consideration while implementing PrEP is outreach *via* the digital means such as dating applications and availability at CBO sites so that the services are extended in a community-acceptable manner.

ETHICAL APPROVAL:

For this study, an ethical approval was taken from Bridge Consultant Foundation, Karachi, Pakistan prior to study roll-out.

PATIENTS' CONSENT:

Informed consent was taken from the study participants for inclusion in the study. The consent explicitly stated that data shall be analysed and published for the scientific community, however, personally identifiable information will not be shared or published in any form.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

UA: Study design, data collection, analysis, manuscript writing.

MSKP: Study design, ethical approval, manuscript writing.

RP: Study design, review of data collection tool, manuscript writing.

HMS: Drafting and reviewing data collection tool, manuscript review.

AA: Study design, ethical approval, manuscript review.

All authors have approved the final version of the manuscript to be published.

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