

Factors Influencing Willingness to Use Pre-Exposure Prophylaxis among Male Homosexuals at the SWOP Clinic

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Abstract: ***Introduction:** The main aim of this study was to assess the factors influencing acceptance and willingness of using pre exposure prophylaxis, **Materials and Methods:** The study was a cross sectional study and data collection was carried out using standardized questionnaires involving a sample size of 196 individuals and three focus group discussions, **Results:** This study through the regression and correlation models suggests that acceptance and willingness of using pre-exposure prophylaxis depends on awareness on methods of preventing HIV/AIDS and stigma, **Conclusion** to optimize uptake of this intervention this two variables should be emphasized by the implementing PrEP programs.*

Keywords: Willingness, Acceptance, Pre-Exposure prophylaxis, Male Homosexuals

1. Introduction

The use of antiretroviral agents in an HIV-uninfected person before potential sexual exposure with a HIV-infected partner is known as pre-exposure prophylaxis. Despite great progress in tackling the Human immunodeficiency virus epidemic worldwide in the past two decades, the one population in which the epidemic continues to grow in countries of all incomes is in men who have sex with men (MSM), (WHO, 2016). Determining the number of MSM is difficult worldwide, the World Health Organization estimates that at least 3% and as high as 16% of men have had sex at least once with a man. Their estimate includes victims of sexual abuse in addition to men who regularly or voluntarily have sex with men (WHO, 2016). The United Nations estimates that 6-20% of men worldwide have had sex with other men at some point during their lifetime (UNAIDS, 2016).

Pre-exposure prophylaxis pills mainly consist of two antiretroviral drugs namely Tenofovir and Emtricitabine. These two drugs are combined and given as a single pill and work to keep the virus from establishing a permanent infection when the individual is exposed through sex, intravenous drug use and rape. Studies have shown that effectiveness of PrEP in reducing the risk of HIV in people who are at high risk depends on the pills being taken consistently and this has been shown to reduce the risk of HIV by up to 92% (CDC, 2017). PrEP is much less effective if the adherence is poor. When combined with condoms and other prevention methods this has shown it to provide even greater protection than when used alone. But people who use PrEP must commit to taking the drug every day and seeing their health care provider for follow-up every 3 months. (CDC, 2016), however this intervention has not yet been received by the targeted population in the same way that it was imagined, this also included health care workers who through a survey a third of them indicated that they did not think that PrEP was relevant to their practice (Maile Y. Karris et al., 2014)

In Kenya, the government through the ministry of health in July 2016 released guidelines recommending the provision of immediate initiation of ART and PrEP use among the uninfected partners at high risk of HIV acquisition, this is after the various clinical trials done as pilot studies in Kenya demonstrated good success rates, and hence the government rolled out PrEP across the country with the view of making it accessible, available, acceptable and integrated into the various health care institutions with the view of having the desired impact as laid down by the Kenya AIDS Strategic Framework and the HIV Prevention Revolution Road Map (Nascop, 2016)

2. Materials and Methods

A sample size of 196 individuals was used out of the 386 active HIV negative MSM enrolled at the clinic as per end of July 2017, data collection was carried out in August 2017 where Standardized questionnaires were used to collect data from the MSM in SWOP CITY clinic until the sample size for the study was reached. Three focus group discussions were utilized to gather qualitative information on the factors influencing acceptance and willingness to use pre exposure prophylaxis from the selected individuals, collected data was entered, cleaned and exported into SPSS Version 20.0 for analysis, and the data generated was presented in form of tables.

Inclusion Criteria

- HIV negative MSM enrolled at the SWOP CITY clinic
- MSM Enrolled for over six months at the clinic

Exclusion Criteria

- Those who were challenged mentally and not able to make an informed decision on their own
- Those who declined to consent
- Those too sick to participate

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		Accept	Knowledge on HIV transmission	Awareness of HIV	Attitude,	Stigma
Accept	Pearson Correlation	1				
	Sig. (2-tailed)					
Knowledge on HIV transmission	Pearson Correlation	-.081	1			
	Sig. (2-tailed)	.254				
Awareness of HIV	Pearson Correlation	.139	-.025	1		
	Sig. (2-tailed)	.051	.730			
Attitude	Pearson Correlation	-.032	.100	-.090	1	
	Sig. (2-tailed)	.049	.161	.206		
Stigma	Pearson Correlation	.130	-.152*	-.083	-.084	1
	Sig. (2-tailed)	.067	.032	.245	.238	

*. Correlation is significant at the 0.05 level (2-tailed).

3. Methodology

The methodology consisted of four steps:

Step 1: One on one administration of semi structured questioners

Step 2: Audio recording of focused group discussion

Step 3: Quantitative data cleaning and exporting to SPSS version 20.0 for analysis

Step 4: Qualitative data transcription and analyzing

4. Statistical Methods

Yamane formula was used to determine sample size.

$$n_Y = N / (1 + Ne^2)$$

Where

N = population size (386)

e = alpha level, i.e. e = 0.05

If the confidence interval is 95%

$$0.05 * 0.05 = 0.0025$$

$$0.0025 * 386 = 0.965$$

$$1 + 0.965 = 1.965$$

$$386 / 1.965 = 196.44$$

$$n_y = 196$$

And the regression model was used to depict the multivariate analysis

$$Y = \beta_0 + \beta_{knHIV} X_{knHIV} + \beta_{AwHIVprev} X_{AwHIVprev} + \beta_{att} X_{att} + \beta_{stg} X_{stg} + \epsilon_i$$

From the equation:

Y is the dependent variable, β_0 is a constant,

β_{knHIV} , $\beta_{AwHIVprev}$, β_{att} , β_{stg} are the regression coefficients while X_{knHIV} , $X_{AwHIVprev}$, X_{att} and X_{stg} represents the independent variables

Y = acceptability and willingness to use Prep

X_{knHIV} = Knowledge on HIV AIDS transmission

$X_{AwHIVprev}$ = Awareness on methods of preventing HIV/AIDS

X_{att} = Attitudes and behaviours related to HIV AIDS

X_{stg} = Stigma and HIV/AIDS ϵ_i is the error term

5. Statistical Interpretation

Significant $p < 0.05$

Not significant $p > 0.05^*$

Statistical Software

Statistical Package for Social Sciences Program (SPSS) version 20.0, was used for data analysis

6. Results

Correlation among variables

From the figure above, stigma correlates negatively with all other variables except accept while attitude correlates negatively to all other variables except for the variable knowledge on HIV transmission. Awareness of HIV on the other hand correlates positively to accept and negatively to knowledge of HIV transmission.

Table 1: The Regression Model

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.206 ^a	.043	.023	.23590

a. Predictors: (Constant), Stigma, Awareness of HIV, Attitude, Knowledge on HIV transmission

As presented in the model summary, within the variables, coefficient of determination (R) of 0.206 was obtained compared to overall R^2 of 0.043 and this explains 20.6% of total variations that explained factors that affected acceptance and willingness of using pre-exposure prophylaxis.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.480	4	.120	12.158	.015 ^b
	Residual	10.796	194	.056		
	Total	11.276	198			

a. Dependent Variable: PrEP acceptance and willingness

b. Predictors: (Constant), Stigma, Awareness of HIV, Attitude, Knowledge on HIV transmission

The Table 2 presents the ANOVA findings ($p < 0.05$) shows that there is correlation between the predictors variables (Stigma, Awareness of HIV, Attitude, Knowledge on HIV transmission) and the predictor variable [PrEP acceptance and willingness].

Table 3: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.275	.356		.772	.441
Knowledge on HIV transmission	-.008	.010	-.057	-.800	.425
Awareness of HIV	.017	.008	.148	2.092	.038
Attitude, Stigma	-0.00027	.001	-.002	-.031	.976
	.003	.002	.133	1.863	.064

a. Dependent Variable: PrEP acceptance and willingness

The MLR regression model was used to present the relationship between factors that affected acceptance and willingness of using pre-exposure prophylaxis was

$$Y = \beta_0 + \beta_{knHIV} X_{knHIV} + \beta_{AwHIVprev} X_{AwHIVprev} + \beta_{att} X_{att} + \beta_{stg} X_{stg} + \epsilon_i$$

Whereby

Y = acceptability and willingness to use Prep

X_{knHIV} = Knowledge on HIV AIDS transmission

$X_{AwHIVprev}$ = Awareness on methods of preventing HIV/AIDS

X_{att} = Attitudes and behaviours related to HIV AIDS

X_{stg} = Stigma and HIV/AIDS

ϵ_i is the error term

Thus, the MLR regression equation becomes

$$Y = 0.275 - 0.008X_{knHIV} + 0.017X_{AwHIVprev} - 0.00027X_{att} + 0.003X_{stg} + 0.356\epsilon_i$$

From the equation, holding other factors constant, acceptance and willingness of using pre-exposure prophylaxis among MSM is 0.275. A unit change in Knowledge on HIV AIDS transmission leads to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.008 times compared to 0.017 times increase for a unit change in awareness on methods of preventing HIV/AIDS. A unit change in Attitudes and behaviors related to HIV AIDS led to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.00027 times while a unit change in stigma led to an increase of 0.003 times acceptance and willingness of using pre-exposure prophylaxis among MSM.

7. Discussion

The results analyzed from the social demographic characteristics of the respondents impressed that most of the MSM's attending the clinic were between the ages of 18-30 years followed closely by those in the age bracket of between 31-40 years, of these individuals majority identified themselves as male preferring a fellow male partner to engage in sex with, however majority of the respondents did indicate that there preferred role during sex as either meaning that they are comfortable playing the female role or the male role, this can be explained by the fact that SWOP city clinic serves low end sex workers who engage in sex trade.

Most of the respondents are literate with the majority having attained at least a certificate in the course of their education, however a substantial number of them are not economically

empowered as they are un-employed with the majority of the individuals who are employed earning between Ksh10, 000-30,000, majority of them were single with only a substantial of them being married.

All of the respondents were aware of HIV/AIDS (100%), with the majority indicating transmission of the virus as being through sexual contact (68.3%) they were also aware that HIV/AIDS transmission is higher in MSM than in hetero sexual relationships (99%) and majority of them indicated their source for this information as being the media (48.7%), the findings of this study concurs with that one done by Holt in Australia which indicated that the Australian gay and bisexual men based on an online survey showed that 77% of the participants being aware of HIV and PrEP, their source of information was gay community media, this study finding also concurs with the one done by Grulich as MSM in this study are aware that HIV AIDS is higher in MSM as compared to their hetero sexual counterparts, Grulich in his study indicates that MSM are approximately 18% times higher of contracting the virus as when compared to their fellow heterosexual individuals.

On the prevention methods aimed at curbing HIV/AIDS infection, all the respondents (100%) preferred the use of condoms when engaging in sexual intercourse, with (72.3%) of the respondents preferring to engage into sexual intercourse with partners in whom they knew their status, (94.9%) of the respondents preferred having only one partner in whose their status they knew to engage in sex with and (99%) preferred to be tested and treated for STDs and finally all the respondents (100%) preferred their partners to seek treatment should they have an STD. The findings of this study shows clearly that MSM clearly are well aware of HIV/AIDS and how to prevent the acquisition of this virus, top on the most effective methods of preventing this virus is the use of condoms and having sex with only one partner in whom they are well aware of their status, this findings do concur with the findings of a study done by CDC which elaborated that as a strategy of not getting infected with HIV, some MSM engaged in adaptive behaviors of choosing sexual partners that they knew to be of the same HIV status as theirs so as to regularly engage in un protected sex with them and in so doing they perceived this as protecting themselves and as a form of reducing their risk of acquiring or transmitting HIV.

Analysis on the subject of MSM attitudes and sexual behaviors related to HIV/AIDS depicted that condoms were easily accessible, affordable and easy to use, however the MSM disagreed that sex was better without condoms, this shows that condoms are well accepted by MSM and used by this population This finding is concurrent with the finding which Holmes made that it had been shown that condom use contributes to HIV prevention among MSM communities which, in part, was due to community mobilization recommending condom use, however the study shows how MSM's engage in risky sexual behaviors with their partners where 85% of the respondents engaged in sex with more than one partner simultaneously, 74% agreeing with the fact that it's difficult to keep a steady partner(s) for more than a year, 74% stated that their situation forced them to having more

than one partner and 75% of the respondents agreeing that they knew that their partners to the best of their knowledge also had other partners

Analysis done on sexually transmitted infections management showed that almost all of the respondents 99% agreed that STIs are common among them with 85% of them attesting that in a year they would get an STI at least three times and 94% would seek treatment for the STI at the clinic, of those who get STIs 99% of them do encourage their partner(s) to get treated for STIs, however only 62% of the respondents acknowledged that their partners usually inform them to get treated should they be treated for an STI, this findings clearly shows that STIs are a common problem among the MSMs and with the roll out of PrEP among this population studies such as the one done by Volk have shown that there would be high levels of sexually transmitted infections as no new HIV infections will be demonstrated in individuals using PrEP hence the suggestion suggested by Corneli that the roll out of PrEP should equip the end users with making informed choices about reducing their risk of HIV and about their sexual health beyond HIV prevention should be highly considered.

All of the respondents agreed to have consumed alcohol with 99% of the individuals admitting to have enjoyed alcohol when out with friends, 98% agreed to going on drinking spree often and 95.5% reported that alcohol made them to feel more relaxed with their partner(s) however 82.9% of MSMs denied that when drunk a bit too much they tend to forget to use a condom, this finding is consistent and tends to show that MSMs are more aware of the role of condoms in preventing HIV/AIDS and STIs despite them engaging in risky sexual behaviors

On the analysis done on the stigma faced by men who have sex with men showed that only 6% of the respondents had disclosed their sexual orientation to their families and friends this was primarily based on fear of being judged 75%, with 17% of the respondents citing their reasons as they were concerned about making their families unhappy, and 8% of them indicating they were embarrassed by what they do. 95.5% of the respondents indicated that they would not seek health care services outside of the SWOP city clinic, with the majority citing their reasons as fear of being judged 51.8%, followed by 15.1% indicating rude health care workers and 14.1% of the respondents citing being ridiculed by the health care worker, this finding concurs with the findings of the study done by CDC which depicted that Young MSM are often aware of incomprehension and hostility around issues of same sex behavior. Understandably, many choose to keep their sexual behavior or orientation hidden from others, but this may reduce their access to guidance and information about HIV and the risks of unprotected sex especially if they fear stigma and discrimination from health care providers and may make them more likely to engage in risk taking behaviors

Analysis done on PrEP showed that 98.5% of the respondents were aware of PrEP with 78.9% of the respondents having an opportunity to use the drug, majority of MSMs 78.9% indicated that they would accept PrEP if it

is taken daily, 79.9% did not mind taking the drug at a specific time every day so as to ensure its effectiveness, 76.9% would still accept it even if it's not 100% protective, 83.9% would still accept PrEP even if the respondents will still need to continue to use other preventive methods, 71.4% would still accept PrEP despite its side effects with 69.3% indicating that they would still take the drug despite being seen taking the medicine by those in whom they have not disclosed their orientation and finally 72.9% of the respondents indicated that they would still accept PrEP despite being seen taking the drug by their partners or friends who know their orientation.

This finding contradicts with a study done by Francis in 2016 on the acceptance and willingness to adopt PrEP in Switzerland among the MSM as Francis segregated the outcome as high levels of acceptance, some MSM refused the intervention, and lastly ambivalent MSM who believed the benefits to the MSM to be limited or conditional, this as compared to the findings of this study which showed an acceptance and willingness of taking PrEP as being highly significant, however the findings of this study concurs with findings of the study done by Marcus JL which yielded results that receipt of HIV pre exposure prophylaxis was not associated with an increase in sexual risky behaviors drawing a conclusion that Frequent clinic visits, HIV testing and counseling, and daily PrEP use itself may motivate and popularize safer sexual practices. Holding other factors constant, acceptance and willingness of using pre-exposure prophylaxis among MSM is 0.275. A unit change in Knowledge on HIV AIDS transmission led to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.008 times compared to 0.017 times increase for a unit change in awareness on methods of preventing HIV/AIDS. A unit change in Attitudes and behaviors related to HIV AIDS led to a decrease in acceptance and willingness of using pre-exposure prophylaxis by 0.000027 times while a unit change in stigma led to an increase of 0.003 times acceptance and willingness of using pre-exposure prophylaxis among MSM.

8. Conclusions

The MSM cohort is well aware of the HIV/AIDS pandemic and the various ways this disease is transmitted, they are also cognizant with the fact that HIV prevalence is higher among their cohort as compared to the heterosexual cohort, and though they have multiple sexual partners they are keen to use preventive measures so as to protect themselves from STIs and HIV, however stigma is still a threat in this cohort as majority of the MSM have not yet disclosed their sexual orientations citing fear of being judged and preferred to seek health care attention in MSM friendly clinics. Therefore the knowledge of HIV and how it's transmitted, coupled with the risky sexual behaviors that the MSM admit to indulge in contributes significantly to the increased acceptance and willingness of using PrEP as the study depicts that 78.9% of the respondents actually were on PrEP, the study also elicits that though the majority of the respondents are stigmatized as highlighted interestingly when it comes to taking the PrEP in the presence of individuals they have not yet disclosed their

sexual orientations to, they would still take the medicine, drawing the conclusion that stigma would not affect negatively the acceptance and willingness of using PrEP in this cohort.

9. Recommendations

- 1) Based on the findings of this study, MSM are more comfortable seeking health care services in health facilities that offer friendly services to this cohort, therefore the ministry of health through its partners should set up clinics targeting the key population all over the country that will offer friendly services and this will help curtail the spread of STIs and aid in the reduction in prevalence of HIV both in the general and the key population.
- 2) Since the study yields results that knowledge of HIV, how the disease is transmitted, and the awareness of the risky sexual behaviors that the MSM engage in directly informs this cohort to embrace preventive measures to curb acquisition of STIs and HIV infections such as consistent use of condoms, Sero sorting and the use of PrEP, the ministry of health through its partners should continue to embrace sensitization of HIV/STIs prevention messages especially to young members of this cohort so as they make informed choices

10. Areas of Further Research

The prevalence of HIV in MSM is almost triple that of the general population despite the MSM cohort embracing the prior preventive measures such as sero sorting and consistent condom use, PrEP being a newer intervention recently rolled out to the key population and scientifically shown to prevent acquisition of HIV, further research needs to be done to depict if PrEP will reduce the prevalence of HIV in this cohort.

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