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Individual Factors Associated With the Use of Prep as a HIV Prevention Measure among Female Sex Workers in Naivasha Town

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Abstract: *World Health Organization (WHO) endorsed the use of pre-exposure prophylaxis (PREP) to prevent acquisition of Human immunodeficiency virus (HIV) infection among individuals at substantial risk.The few studies that have been done on PrEP among FSW in Kenya indicate low usage and knowledge of the therapy, despite transactional sex being recognized as an indication for PrEP. PrEP lowers HIV acquisition in women by 60-70% but the biggest challenge in the introduction of PrEP is its use by the marginalized populations who cannot access health care facilities due to stigma, criminalization of sex work, and harassment. This study sought to determine individual factors associated with the use of PrEP as a HIV prevention measure among female sex workers in Naivasha town. Mixed methods study design was used comprising of cross-sectional and qualitative study. Data collected from quantitative data was analyzed using statistical package for social scientists (SPSS 2018) while qualitative data was organized using NVivo version 8 and coded using thematic analysis. The study contributes towards Kenya Aids Strategic framework 2014/2015-2018-2019 goals in reducing new HIV infections by 75% and attaining a nation free of HIV infections, stigma and AIDS related deaths. Social demographics findings show that majority of female sex workers in Naivasha were aged between 20-40years with a mean age of 31.9. A greater number of female sex workers were single, had access to primary and secondary school and had been residing in Naivasha town for less than a decade. Significant factors associated with PrEP use were; STI and HIV tests done within the previous three months, anal sex, marijuana and drug injection, drug adherence, risk of acquiring STI and nonjudgmental services at the health care facility. Analysis from Health care provider interview showed that lack of training, challenges in admistering Prep, low stock levels and lack of reporting tools were the major provider factors that were associated with PrEP use. Prep uptake is still low despite awareness being high. Interventions to integrate PrEP into existing HIV prevention measures is important, Ministry of health and HIV and AIDS partners need to come up with strategies to combat stigma and to educate female sex workers on PrEp use.*

Keywords: *Individual Factors, Use of Prep as a HIV Prevention Measure, Female Sex Workers*

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I. Introduction

Background to the Study

In September 2015, World Health Organization (WHO) endorsed the use of pre-exposure prophylaxis (PREP) to inhibit acquisition of Human immunodeficiency virus (HIV) infection among individuals at substantial risk (WHO policy brief, 2015). Globally, it is estimated that the prevalence of HIV among female sex workers is at 12% (UNAIDS Global report,2012) with sub-saharan Africa having the highest attributable fraction of 17.8% (Press-ustun A et al,2013).A recent review estimated that female sex works are 13.5 times more likely to be infected compared to other women (Baral,S et al 2012) Progressive use of antiretroviral treatment globally has brought down AIDS related deaths from a peak of 1.9million to 940,000 in a span of 6 years (Global AIDS update, 2018). The use of ARV as a preventive measure has shown its efficacy in prevention of mother to child transmission of HIV (Lallemant et al, 2004). However, HIV prevention remains a big challenge. Decline in new HIV infection rates among adults is slowing down delaying strategies set to end the AIDS pandemic. The incidence of HIV among individuals aged 15 years and above has declined from 3.4 million to 1.8 million since 1996 to date (Global AIDS update, 2018). The slow progress should be addressed in order to obtain the intended zero campaign by UNAIDS (UNAIDS 2010).

Female sex workers (FSW) form part of the key population who are faced with high prevalence of HIV acquisition, disease, and transmission, with pooled odds of HIV infection that in the global context are 13-times greater than the general population (Baral, S. *et al*, 2012). Sex work accounts for 14% of all new HIV infections

in Kenya according to Modes of transmission analyses estimates (Gelmon, L. *et al*, 2009). Kenya and South Africa are the two countries in Sub –Saharan Africa with demonstration projects that attend to adults at risk of acquiring HIV (PrEP watch, 2016; Gilead,2016). A study among MSM and FSW who participated in a 4 months PrEP trial found high acceptability however stigma, alcohol use and mobility contributed to non-adherence (Van der elst *et al.*, 2013) PrEP delivery, integration and linkage to other HIV prevention services have not been fully implemented in most health care facilities slowing down access and uptake (kiragu, 2016; options consortium 2016).

The few studies that have been done on PrEP among FSW in Kenya indicate low usage and knowledge of the therapy (Izulla., 2016; Olsthoorn *et al*., 2016), despite transactional sex being recognized as an indication for PrEP (Ministry of Health {MOH}, 2014a). These statistics necessitate the need to strengthen biomedical and behavioral interventions to prevent HIV transmission among FSW (Linda-Gail Bekker *et al*, 2012). One possible approach is adoption of oral PreP as a prevention strategy, thus the need for understanding factors associated with the use of PrEP as a HIV prevention measure among FSW in Naivasha Town. The study will explore PrEP use as dependent variable while individual factors, provider factors and uptake of PrEP as independent variables. Results from the study contribute immensely in the implementation of PrEP roll out programs in the counties, and impact on reduction of new infections among FSW and their clients who are important target population for a public health response to HIV.

Statement of the Problem

PrEP lowers HIV acquisition in women by 60-70% (Celum, C., et al, 2012) but the biggest challenge in the introduction of PrEP is its use by the marginalized populations who cannot access health care facilities due to stigma, criminalization of sex work, and harassment. As HIV transmission continues to be a threat among FSW, it is important to heighten HIV prevention strategies available to them especially those that women can use. For PrEP to be a feasible HIV prevention measure, accessibility at the health care facility should be addressed (Underhill k et al 2010).

It is undoubtedly clear that the prevlence of HIV in Kenya will remain high if the incidence rate is not reduced. A combination of behavioral prevention methods and biomedical interventions is necessary for successful HIV prevention, this requires evidence-based approaches that that are socially and culturally appropriate for a particular population, hence the need to understand 'factors associated with the use of pre-exposure prophylaxis as a HIV prevention measure among female sex workers in Naivasha town Nakuru County'.

The study hopes to contribute towards Kenya Aids Strategic framework 2014/2015-2018-2019 goals in reducing new HIV infections by 75% and attaining a nation free of HIV infections, stigma and AIDS related deaths. It may also be used as a policy informing tool in by policy makers and actors in HIV prevention as they roll out and implement PREP in the counties. Female sex workers will be educated on PrEP use, adherence and medication effects during the study.

General Objectives

To determine Individual Factors associated with the use of PreP as a HIV prevention measure among female sex workers in Naivasha Town.

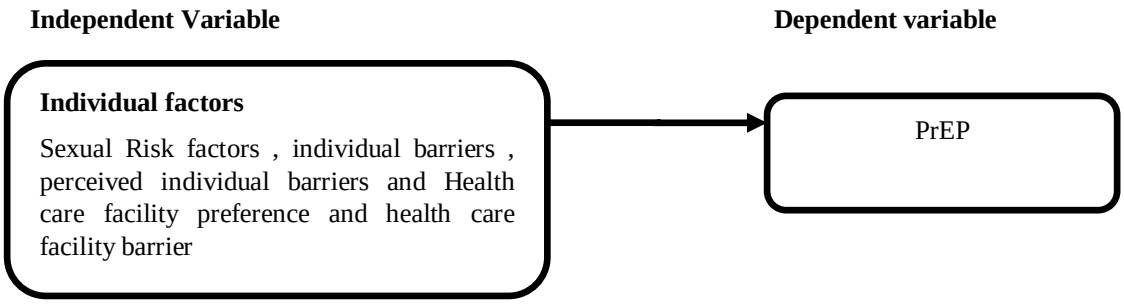
Specific Objectives

To determine individual factors associated with the use of PrEP as a HIV prevention measure among female sex workers in Naivasha Town.

Research Hypothesis

$H0_1$: There is no association between individual factors and the use of PrEP as a HIV prevention measure among female sex workers in Naivasha Town.

Conceptual Framework



II. Literature Review

Access

PrEP availability is limited, only 5% or less of individuals at substantial risk of HIV infection accessing it (UNAIDS, 2016). In 2012 PrEP use was approved in the United States and clinical guidelines disseminated in 2014. France rolled out PrEP in health care facilities in 2016 and by mid-year, 60 clinics offered PrEP service and 437 people had enrolled for PrEP (UNAIDS, 2016). South Africa became the first sub – Saharan country in Africa to issue a regulatory endorsement of PrEP and incorporate it to the national HIV Programme. Kenya followed suit in 2015. Other countries that have approved PrEP use include Australia, Canada, Belgium, Portugal and Brazil among others (UNAIDS 2016). The European Medicines Agency has endorsed PrEP marketing across the 28 countries under European. (EMA, 2017). Countries that have regulatory approval for PrEP use have availability constrains due to several factors. It's become ambitious to get a PrEP prescription or buy it online, even where national clinical guidelines or policies on PrEP are in place. Regardless of its legality, doctors may be unable to prescribe it. PrEP may not be free of charge under a national health system (PrEP Access Roadmap, 2017).

Awareness

It is expected that high knowledge of PrEP increases its demand unfortunately, beneficiaries of PrEP in prevention of HIV acquisition are still uninformed of its use. 34.5% of men who have sex with men were aware of PrEP in study that was assessing awareness and acceptability of PrEP in Scotland. Men who tested for HIV twice yearly had higher chances of PrEP awareness (Frankis *et al*, 2015). Another research in the USA among young MSM aged between 18 and 24 years, established that only 27% of the population were aware of PrEP The percentage would have been higher if they were older, well educated, had a permanent home and an insurance cover (Bauermeister, 2013). A further study among young black men who have sex with men, who are the most exposed groups for HIV in the USA, observed lack of awareness which led to low uptake of PrEP The gap in medical attention that this group struggled with in the HIV incidence rates will bring about extensive implementation challenges, which needs strong willed and constant commitment with the communities they attend to. (Khanna, 2016). Access to HIV prevention Biomedicals require closure by FSW of their sexual risks behavior, but due to medical mistrust, discrimination and shaming FSW keep off Health care facilities despite their awareness of the drug which in turn lowers uptake (Underhill, k.,*et al* 2015). (Mtetwa, S.,*et al* 2013) suggests the need to sensitize health care workers on how to handle FSW when they seek HIV biomedical prevention services.

Not offered as part of HIV/STI prevention services

PrEP can only be effective if it is well adhered to. It does not protect against STIs but should be offered in the comprehensive package of HIV/STI prevention services (AMFAR, 2013). Several interventions for distributing PrEP have been recommended, including linking PrEP services to STI clinics, primary care clinics and community-based organization (Norton *et al*, 2013). Majority of health care facilities have not linked PrEP with other HIV/STI prevention services, (Mayer,k.2015) attributes that low uptake of PrEP could be due to the fact that health care providers do not ask about individuals sexual behavior thus missing an opportunity to initiate Prep, Moreover female sex workers may shy off from requesting PrEP because of moralistic discussion that may arise in the name of counselling. In a study that recruited 2120 women from Kenya, Tanzania and South Africa showed that, all participants are at a substantial risk of HIV,50% of them understood that they had higher probability of acquiring HIV. To contest this, the research recommends consolidating HIV risk assessment and PrEP distribution into existing sexual and reproductive health services, including HIV/STI testing and counseling, antenatal care, and contraceptive counseling which are accessible to women regularly (Thomson *et al*, 2016).

Non-adherence

Understanding the rate of adherence to PrEP and solving the barriers affecting adherence, is important to achieve successful PrEP implementation (UNAIDS, 2016). A study done in three cities in the USA reported varied levels of PrEP adherence among MSM. In San Francisco, 52% of MSM took PrEP every day in comparison to 3% in Washington DC and 13.5% in Miami (Cohen *et al*, 2014). Aspects like knowledge and awareness of PrEP, availability, and participant's lifestyle were associated with this gap (Cohen *et al*, 2014). A study among Africa couples established that women who had gone through verbal, physical or economic abuse from a spouse had a higher probability to low PrEP adherence. This is due to stress and failing to remember, leaving home without pills and partners disposing pills (Roberts *et al*, 2016).

Stigma and discrimination

PrEP-related stigma and discrimination has been reported among key populations in different countries. Government authorities may victimize sex workers who have PrEP pills as affirmation of sex work (UNAIDS, 2015). Participants who participated in transactional sex reported that stigma from their partners would prohibit them from using PrEP, thus those who face multiple stigmas need intensified interventions to allow them access PrEP (Biello *et al*, 2017). An interview by Global Network of Sex Work Projects in 40 countries, recruited 440 participants' and only a few had heard of PrEP They were also uncertain about PrEP influence on condom use. Non-governmental organizations and sex work groups are troubled about various issues revolving around PrEP, including cost and discrimination (IDS, 2016).

III. Methodology

Study Area

The study was conducted in Naivasha Town within Nakuru County, Kenya. Naivasha Town is located 0° 43′ 0″ S, 36° 26′ 0″ E which is 2084m above sea level, it is about 100km Northwest of Nairobi. Naivasha Sub County has a total of 50 health facilities, 11 of which are GOK owned while the rest are Faith based or privately owned. The town has a population of about 355,383 people according (Kenya population and housing census, 2019).

Research Design

A cross-sectional mixed method study design was used to provide evidence on factors associated with PrEP use among FSW in Naivasha town. Quantitative data was collected from administered questionnaires of consenting self-proclaimed HIV negative FSW. Qualitative data was collected from in-depth interview with randomly selected health care providers from various departments that handle female patients in the hospital and health care providers at the drop-in center in Naivasha Town.

Study Population

The target population was female sex workers who met the inclusion criteria.

Inclusion Criteria

Self-reported HIV negative FSW, FSW with unknown HIV status, FSW aged 18 years of age and above, willing to provide written consent

Exclusion Criteria FSW who did not consent to participate or withdraw from the study, all known HIV positive female sex workers

Sampling Procedure

Questionnaires were systematically distributed to female sex workers aged 18 years and above who gave consent to the study.

Sample Size Determination

Sample size calculation was based on the Cochran formula to determine a sample of 197 respondents.

Recruitment of Health Care Providers

Health care providers working at the comprehensive care clinic, pharmacy and drop-in center were purposively selected and invited to participate via a letter, followed by a telephone call to confirm attendance. In- depth interviews were conducted on the three departments (comprehensive care clinic, pharmacy and drop-in center) and the day was randomly selected. Health care providers from the mentioned departments working on the selected day were invited to participate, this is because health care providers have self-selected themselves according to the work schedule (different cadres on shift). One interview was conducted on each department (comprehensive care clinic, pharmacy and drop-in center) and took 30 minutes to 45 minutes, it was audio taped for consenting health care providers. Those on leave during the time of the study were excluded.

Recruitment of FSW

Snowball sampling (exponential non-discriminative snowball sampling) was used to recruit FSW into the study with the help of peer leaders from the various hotspots in Naivasha town, face to face interview was conducted among consenting female sex workers at the drop in center for a period of two months until the desired sample size was achieved. All peer leaders who were dully registered at the Drop-in center in Naivasha town, who gave consent to participate in the study were recruited. Peer leaders were invited via phone call to participate in the study. Those who agreed to participate in the study helped in recruiting FSW into the study via snowball.

Data analysis and Reporting

Questionnaires were checked for completeness and consistency, and stored under lock and key cabinet which was only accessed by authorized personnel. Data collected from factors associated with the use of PrEP among FSW was analyzed using statistical package for social scientist (spss 2018). Prevalence was used to calculate the prevalence of FSW in Naivasha town who take PREP. Chi – square test was used to determine if there was a significant relationship between individual factors and PrEP use as well as provider factors and PrEP use. Data was De-identified and anonymized using codes at data entry and transcription. Data collected from in depth interviews was organized using NVivo version 8 (Bazeley p 2007) and coded using a thematic analysis (Forrest Keenan, et *al* 2005).

IV. Results

Socio Demographic Characteristics (n=185)

Characteristics	Frequency (n)	PrEP use Yes	PrEP use No	Percent (%)	P value
Age mean= 31.9					
• 20-30	82	14(24.6)	43(75.4)	44.3	0.301
• 31-40	86	13(22.4)	45(77.6)	46.5	
• 41-50	16	0(0)	11(100)	8.6	
• 51>	1	0(0)	1(100)	0.5	
Marital status					
• Single	109	25(24.8)	3(75.2)	58.91	0.058
• Married	76	2(7.7)	24(92.3)	41.08	
Level of Education					
• None	2	2(100)	0(0)	1.1	**0.029**
• Primary	74	12(22.2)	42(77.8)	40.0	
• Secondary	76	9(18.4)	40(81.6)	41.1	
• College	19	4(30.8)	9(69.2)	10.3	
• University	14	0(00	9(100)	7.6	
Length of stay in Naivasha mean = 9.5yrs					
<=10	140	24(28.9)	59(71.1)	76.1	**0.036**
11-20	33	3(9.4)	29(90.6)	17.9	
21-30	9	0(0)	9(100)	4.9	
31-40	2	0(0)	2(100)	1.1	

Majority of the respondents (90.8%) were aged between 20-40 years, with mean age of 31.9 Standard deviation 6.5. Over 34% of the respondents were single, most had access to primary and secondary school education (40 & 41.1%.) respectively. Majority (76.1%) of the respondents had been residing in Naivasha for less than a decade. Analysis above indicates that among the social demographic characteristics; level of education and length of stay in Naivasha had a significant association with PrEP use.

Individual factors associated with PrEp use

Sexual risk factors

Characteristics	Frequency	PrEP Use Yes	PrEP Use No	Percent	P Value
Sexual orientation (n=184)					
• Lesbian	11	1(143)	6(85.7)	6	0.503
• Heterosexual	167	26(22.4)	90(77.6)	90.8	
• Bisexual	6	0(0.0)	4(100)	3.3	
STI test done in previous 3 months (n= 183)					
• Yes	80	21(35.5)	38(68.4)	43.2	**0.000**
• No	103	6(9)	61(91)	55.7	
HIV test done in previous 3 months (n=182)					
• Yes	111	25(30.1)	58(69.6)	61	
• No	71	2(4.8)	40(95.2)	38.4	**0.001**

Sexual acts participated in the last 3 months					
• *Vaginal* (n=181)					
Protected	49	4(12.5)	28(87.5)	27.1	0.310
Unprotected	30	3(20)	12(80)	16.6	
Protected/unprotected	102	20(25.6)	58(74.4)	56.4	
• *Anal* (n=90)					
Protected	20	6(40)	9(60)	22.2	**0.002**
Unprotected	41	2(7.7)	24(92.3)	45.6	
Protected/unprotected	29	1(3.6)	27(96.4)	32.2	
• *Oral* (n= 103)					
Protected	9	0(0.0)	4(100)	8.7	0.649
Unprotected	89	8(12.1)	58(87.9)	86.4	
Protected/unprotected	5	1(25)	3(75)	4.9	
Drug use in the past 3 months (n=182)					
• Alcohol					
Yes	162	24(22)	85(78)	89	0.859
No	20	3(20)	12(80)	11	
• Drug injection (n=182)					
Yes	45	3(9.4)	29(90.6)	24.7	**0.048**
No	137	24(26.1)	68(73.9)	75.3	
• Marijuana (n=182)					
Yes	54	4(10.5)	34(89.5)	29.7	**0.044**
No	128	23(26.7)	63(73.3)	70.3	
• Cigarette smoking (n=182)					
Yes	79	12(21.8)	43(78.2)	43.4	0.992
No	103	15(21.7)	54(78.3)	56.6	
Condom use					
• Less frequently	79	16(26.7)	44(73.3)	48	0.357
• More frequently	44	5(17.2)	24(82.8)	27	
• As frequent as before	40	5(15.2)	28(84.8)	25	

The findings revealed that 90.8% of female sex workers were heterosexual. 56% of sex workers had not gone for STI screening in the past three months, while 61% had been tested for HIV in the previous three months. Analysis of sexual acts participated in the past six months showed that 56% of the respondents had both protected and unprotected vaginal sex, 46% had unprotected anal sex while 86% practiced unprotected oral sex. Alcohol toped in the drug use analysis among the respondents at 89%, 75% did not inject drugs nor use marijuana (70%) but 57% of the said population smoked cigarette. Notably, 48% of FSW said that they would use condom less frequently if they take PrEP. Sexual risk factors that had significant association with PrEP use include; STI and HIV tests done within the previous three months, anal sex and marijuana and drug injection.

Individual Barriers: A significant number of the respondents 47% disagreed that HIV drugs can help prevent HIV infection, 65% had never used HIV drugs to prevent HIV infection. A greater number (68.6%) of the respondents had never heard of PrEP. Only, Majority of them having heard of PrEP from health care providers 71%, and peer leaders at 63%. Out of the 21 % of those who used PrEP 92% were initiated by a health care Providers. Awareness indicators interviewed had no significant association with PrEP use.

Perceived Individual Barriers

Factors	Frequency	Prep Use		Percent	P Value
		Yes	No		
Stigma (n=128)					
Extremely	20	6(46.2)	7(53.8)	14.5	0.543
Moderately	20	11(64.7)	6(35.3)	14.5	
Not at all	98	9(50.0)	9(50.0)	71.0	
Side effects (n=129)					
Extremely	15	7(43.8)	9(56.3)	11	0.437
Moderately	29	9(56.3)	7(43.8)	21.3	
Not at all	92	10(66.7)	5(33.3)	67.6	
Adherence (n=129)					
Agree	26	6(25.0)	18(75.0)	20.2	**0.050**
Disagree	31	8(38.1)	13(61.9)	24.0	
Not sure	72	7(13.0)	47(87.0)	55.8	
Risk of STI (n= 133)					
Disagree	40	14(43.8)	18(56.2)	30.1	**0.010**
Not sure	38	5(18.5)	22(81.5)	28.6	
Agree	55	6(14.3)	36(85.7)	41.4	
Daily pill burden (n=136)					
Disagree	33	9(36.0)	16(64.0)	24.3	0.069
Not sure	26	1(5.6)	17(94.4)	19.1	
Agree	77	15(24.2)	47(75.8)	56.6	
Access (n= 57)					
Extremely	10	5(100.0)	0(0.0)	17.5	0.060
Moderately	25	4(66.7)	2(33.3)	43.9	
Not at all	22	16(45.7)	19(54.3)	38.6	
Time (n=55)					
Extremely	10	4(40.0)	6(60.0)	55.8	0.557
Moderately	24	10(55.6)	8(44.4)	10.9	
Not at all	21	11(61.1)	7(38.9)	31.2	

Majority 71% of the respondents confirmed that stigma would worry them if they were to take PrEP 58% agreed that side effects posed a challenge in PrEP use, while 56% agreed that adherence would worry them. 41% of the respondents agreed to the fact that PrEP use exposed them to STI risks. Daily pill burden was also a concern if they were to use PrEP at 57%. Accessibility to health care facility that issued PrEP extremely affected PrEP use as well as operational time of the facility. Adherence and STI risk had a strong association with PrEP use.

Health Care Facility Preference for Taking PrEP

Majority of the respondents disagreed with the idea of getting PrEP medication from: Naivasha Sub County Hospital CCC clinic 56%, Naivasha Sub County Hospital Pharmacy (OPD) 54%, Naivasha Sub County Hospital MCH 52% and retail pharmacy in town at 56%. A significant proportion of the respondents (83%) Were in favor of collecting PrEP medication from drop-in center in town. There was no significant association on health care facilty preference for female sex workers to collect PrEP.

Health Care Facilty Barriers Associated with PrEP use among FSW

Majority of respondents felt that confidentiality (73%), accessibility (66%) and periodic monitoring of individual health (55%) would be of importance while collecting Prep from Health care facilities. 64% and 73% of the respondents felt that non-judgmental and, counselling services respectively would not hinder them from collecting PrEP. Non-judgmental services had a strong correlation with PrEP use.

V. Conclusions and Recommendations

Regarding the social demographic characteristic, the study concluded that the length of stay was clustered in a period of 10 years; prep was launched in the country May 2017. That justifies why majority of the participants of those who have stayed in Naivasha for less than a decade had not taken Prep. Female sex workers are known to be mobile, unfortunately current guidelines have ignored the use of PrEP among travelers whom FSW are part of (Brett D.M *et al* 2016*)*. Majority of the participants had access to primary and secondary school education. Study findings indicated a significant association between education and PrEP use. Most participants had heard of PrEP but only a minority reported using it. It was interesting to note that despite achieving post primary education, FSW were reluctant to take PrEP potential reasons could be due to the fact that as shown by our data, knowledge about prep did not necessitate uptake probably because more educated individuals know that prep is an antiretroviral and has side effects, stigma and adherence concerns.

The rationale behind high awareness and low uptake could be due to the fact that female sex workers frequent Drop-in center for health care needs, they might have learnt about PrEP as HIV prevention measure during the pre and post -test counselling. Conversely (Mgbako, O.,*et al* 2015) attributes that in most circumstances health care providers do not ask about individuals sexual behavior thus missing an opportunity to initiate PrEP, Moreover female sex workers may shy off from requesting PrEP because of moralistic discussion that may arise in the name of counselling. Access to HIV prevention drugs requires female sex workers to disclose their sexual risk behavior to health care provider but due to medical mistrust, discrimination and shaming they do not even go to health care facilities thus impending PrEP access which in turn lowers uptake despite them being aware of the drug (Underhill, 2015). Study findings are firmed up by (Mtetwa, S., 2013) who proposed the need to proactively sensitize health care providers on how to handle female sex workers especially while they seek biomedical prevention services, as this will help in linking and retaining female sex workers in HIV prevention care.

Regarding the prevalence of FSW in Naivasha town who take PrEP as a HIV prevention measure; the study established that the prevalence of female sex workers who take PrEP as a HIV prevention measure in Naivasha town is 14.6%, this is in line with current use of PrEP among FSW in South Africa reported at 17.54% by (patience shamu et al.) it is contrary to a study done on willingness to take, use of, and indicators of PrEP among MSM in the united states in 2014, where only 4 % of MSM were actually using Prep (Hoots, E,. *et al*, 2016). Another study done in china on prep use among MSM living in Shangai China reported that the actual PrEP uptake was only 2.5% (Ding Y *et al* 2016)

Regarding the sexual risk factors, the study found that majority of female sex workers had not gone for STI screening in the past three months, while a bigger number had been tested for HIV in the previous three months. Study findings are consistent with (shea,J.,*et al* 2019) study where participants felt that STIs are not as baneful to one's health as HIV considering treatment availability. FSW are aware of their high susceptibility to HIV thus highly motivated to prevent transmission since majority from our data are single and have to generate income. The significant correlation exists because frequent HIV and STI testing could signify that an individual is exposed thus high risk of contracting HIV. This is line with WHO eligibility screening criteria for PrEP use (World Health Organization 2017)

Regarding the individual barriers, the study found that majority of the participants in the study raised concerns of stigma, side effects, adherence, STI risks, Daily pill burden, Accessibility to health care facility and operational time of the facility as perceived barriers that would worry them while using PrEP. which seem to be common barriers from studies done in Kenya and south Africa. (Eakle *et al*.,2019); Restar, A. J.,*et al* 2017). Prep adherence has been low among FSW enrolled in community HIV prevention programs in south Africa and Zimbabwe (Cowan et al.,2018; Eakle *et al* .,2017) As prep rolls out continues strategies to enhance adherence support systems should be enhanced. (Ware, N. C.,*et al* 2012) study proposed on improving peer support and positive role modelling can improve adherence by reducing stigma and increasing social integration. Majority of the participants who do not take PrEP felt that the risk of acquiring STI would worry them if they were to take PrEP, a bigger percentage of them anticipated to use condom less frequently as before if they were to take PrEP this could explain the significant association sine they are exposed to STI risks these is in line behavioral change concerns that could lead to higher STI incidence (Blumenthal, J.,*et al* 2014)

VI. Recommendations

This study recommended that, the ministry of health and its partners should train health care workers and peer leaders on PrEP to enhance uptake. Ministry of Health should roll out PrEP fully and come with guidelines for PrEP use among sex workers as well reporting tools that captures sex workers Data. Community sensitization regarding antiretroviral medications for prevention, not just for treatment of HIV will create a context that is more receptive to prep use thus enhance uptake.

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