

Association of Attitudes towards HIV Prevention and Risky Behavior Practices among MSM In Kisumu City, Kenya.

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Abstract

Background: Men who have sex with Men (MSM) have been identified as one of the key populations driving the spread of HIV in Kenya. MSM contribute about 7.79% new HIV infections in Nyanza Region; with Kisumu reporting a prevalence of up to 25% among MSM aged over 24 years compared to 15.1% prevalence in the general population. MSM are not an isolated group; they are also involved in stable relationships with women as husbands and boyfriends. This propagates the spread of HIV through homosexual, heterosexual, and further, through Mother – to - Child transmission routes. To design and implement effective prevention interventions among the MSM it necessary to research on attitudes towards HIV prevention and whether these have an effect on their behavior practices that are associated with HIV risk.

Methods: A cross-sectional study conducted among MSM (163 respondents) aged 15 – 55 selected through purposive, simple random and snowball sampling techniques. Semi-structured questionnaires and in-depth interviews were administered to collect both quantitative and qualitative data on socio-demographic characteristics, attitudes towards HIV prevention, and risk-taking behavior practices. Quantitative data were analyzed using SPSS, and statistical tests of association done using chi-square analyses. Manual thematic analysis was done for qualitative data.

Results: Nearly all MSM (92%) have a positive attitude towards HIV prevention. Correct and consistent use of condoms, HIV testing, male circumcision, and treatment of STIs were identified as methods of preventing HIV infection. They MSM were found to be actively engaged in high risk behaviors that are known to be predictors of HIV infection; including engaging in unprotected sex with men and women, commercial sex and unprotected anal intercourse. They also indulged in alcohol and drugs; and engaged in unprotected sex with partners with unknown as well as those with known HIV status.

Conclusion: There is no statistically significant association ($P=0.745$) between MSM attitudes towards HIV prevention and their risk-taking behavior practices. Having a positive attitude towards HIV prevention does not result in the outcome of less risk-taking behavior practices by MSM. Their behavior practices are influenced by other competing interests and considerations; such as the need to make money.

Recommendation: MSM should be meaningfully involved in HIV prevention campaigns to encourage them to come out and play a key role in prevention. Behavior change communication specific to MSM's sexual practices should be introduced to support the conversion of the positive attitudes towards prevention into effective HIV risk reduction behavior practices.

Keywords: MSM, Attitudes towards HIV prevention, Risk-taking behavior practices, Kenya

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I. Background

In many regions of the world, HIV first emerged among populations of Men who have sex with men (MSM) [1]. The MSM face a significantly higher risk of HIV infection than the general population in every region of the world. Globally, less than 1 out of 20 MSM has access to HIV prevention and care [2]. In the absence of affordable treatment or a vaccine, prevention strategies have become paramount in fighting the pandemic.

A 2007 analysis of data from 38 low- and middle-income countries found an overall HIV prevalence of 12.8% among MSM. In many countries, institutionalized homophobia and criminalization of homosexual activity facilitate the spread of HIV, severely hindering efforts to provide treatment and prevention for MSM [3]. In some countries, consensual same-sex sexual activity is a criminal offence. In other countries, male-male sex is punishable by prison sentences of 10 years or more; and in others, it is punishable by death. Even in countries without legal prohibitions against same sex sexual behavior, widespread stigma and discrimination often lead to low testing rates, limited knowledge about HIV prevention, and increased likelihood of

transmission [3]. In an increasingly broad range of countries, contexts, and development levels, male-to-male sexual contact remains an important route of HIV transmission [3].

Most countries in Sub-Saharan Africa (SSA) report a generalized epidemic (infection rates of >1%) with pockets of concentrated epidemics in Key Populations (KPs) [4]. KPs, as identified by UNAIDS, include MSM. Data regarding MSM in Africa are the sparsest in the world, but are beginning to emerge. The best-developed data have been generated in Kenya with the support of the Kenyan National AIDS Council. MSM groups throughout the country have shown HIV prevalence as high as 43% [5,6].

Since HIV epidemics in several African countries have shown encouraging signs of decline, the willingness of MSM populations to be engaged in HIV research and prevention provides a unique window of opportunity to research and to stop the HIV epidemic as it diversifies into smaller populations at risk. If this opportunity is not taken, the proportional contribution of MSM to the HIV epidemic in Africa will continue to grow [7].

The Kenya AIDS Indicator Survey (KAIS) provides the most up-to-date information on HIV and other sexually transmitted infections. The KAIS [8] found that an estimated 7.4% of adults aged 15-64 years were HIV positive – equivalent to 1.4 million Kenyans during that time; and profiled MSM as an important sub-population in the spread of HIV. In Kenya, HIV affects a broad expanse of the general population but some groups are more burdened than others [9]. The KAIS [8] identified KPs who include MSM as the drivers of HIV epidemics in Nyanza Region.

Prevention is known to be effective in reducing the spread of HIV. However, there are factors that can undermine preventive actions within the population. The advent of Highly Active Antiretroviral Therapy (HAART), while helping to prolong the lives of those infected, has also had some unanticipated outcomes. HAART regimens may not be effective for all infected persons due to drug resistant strains of HIV, and unmanageable adverse effects. Sexual practices of MSM are also affected by the availability of pre and post exposure therapy and viral load monitoring; and these influence MSM's perceptions of the risk and consequences of HIV infection [10]. Because of HAART, MSM perceive less threat of HIV and AIDS, less need for safer sex and high effectiveness of HAART in curing AIDS [10,11,12].

In a study on the association of attitudes and beliefs towards Anti retroviral Therapy (ART) with HIV-seroprevalence in the general population of Kisumu, it was also found that ART-related risk compensation was associated with increased HIV-seroprevalence for men; and their results appeared to reflect perceptions that HIV and AIDS is more controllable since the availability of ART. The study also found that there was a belief among the general population of Kisumu that "ART cures HIV and AIDS". According to these authors, this fixed, incorrect belief may have important implications for sexual risk taking behavior among groups like MSM, prevention efforts and HIV sero-prevalence [13].

In Kenya, data on the HIV epidemic shows a stabilizing epidemic among the general population and an elevated epidemic among the KPs. In the Kenya AIDS Response Progress Report of 2014, it was estimated that 18.2% of Kenyan MSM were living with HIV in 2013 [14]. The Kenya National AIDS Strategic Plan (KNASP 3) identified HIV prevention among KPs as a key priority in the fight against HIV/AIDS; but prevention from the point of view of policy makers and implementers has rarely taken into account the opinion and role of the MSM in HIV prevention efforts. There has been no evidence that MSM also prioritize prevention of HIV and AIDS. Research only shows why prevention strategies should target MSM, but it is difficult to really achieve prevention among MSM when they are treated as passive targets. It is not known whether the MSM in Kisumu City also regard prevention strategies as an urgent priority; without which it will be difficult to stop the spread of HIV.

Studies conducted in Nairobi and Mombasa have shown that MSM engage in risky sexual behaviors that put them and their male and female partners at risk of acquiring new HIV infections. Nyanza region was profiled as having the highest prevalence of HIV in the country at 15.1%; with prevalence for both its rural and urban areas at 13.9% and 18.3% respectively [15]. According to the Modes of Transmission (MoT) study conducted by UNAIDS in Kenya, MSM contribute close to 7.79% new HIV infections in Nyanza region.

Kisumu is singled out as the epicenter of MSM in Nyanza Region, and research and national surveys have shown that it has the third highest HIV prevalence rate (19.9%) in the Country; together with a growing population of MSM who are categorized as drivers of new HIV infections. In general, MSM engage in risky sexual behavior, but it is not known what the MSM in Kisumu are doing to contribute to the disproportionately high prevalence of HIV in Nyanza region and there has been no empirical evidence of their sexual risk taking behavior in Kisumu City. These statistics make it necessary to find out the MSM's attitudes towards prevention of HIV; and whether there is any association between those attitudes towards HIV prevention and risk-taking behavior practices.

Materials And Methods

Study design and study area

A cross-sectional study design employing both quantitative and qualitative approaches was conducted in Kisumu City, which is the epicenter of Kisumu County. The study area was selected because of its urban and cosmopolitan nature, a high prevalence rate of HIV and because it has the largest population of the MSM in Nyanza Region.

Sample size and sampling procedure

The MSM population in Kisumu City was estimated at 1,630 (point estimate)[9].

The study population comprised of all the 1,630 MSM in Kisumu City. It included men in the MSM network; composed of men who have come together to advocate for their rights and also to collectively address problems common to them, as well as others who were not registered in the MSM network. Members were initially mobilized by the 3 NGOs that were implementing programs on MARPs and Key Populations (KP) and later the recruits introduced other MSM to the network.

A sample size of 10% of the population was selected for this study resulting in a sample size (n=163). The sample size was determined based on Gupta (2007) proposition on sample sizes for homogenous populations; which states that selecting a sample size of 10% of the population is representative for a study in which the respondents share the same characteristic of research interest. In this study, the respondents had the same characteristic of practicing homosexuality. The sample size was also considered appropriate because of the covert nature of the respondents.

The study used a three-stage mixed sampling approach. Purposive, simple random and snowballing sampling techniques were used to sample the MSM to be recruited as respondents. In the first stage, all 126 men aged 15 – 55 years who were already registered in the MSM network were purposively approached with the aim of recruiting 100% of them. In the second stage, the 126 MSM were used as the sampling frame from which 37 were selected by simple random sampling technique which was done on Microsoft excel. In the third stage, the 37 from the second stage were asked to introduce, through snowballing, one unregistered MSM each; fitting the requisite inclusion criteria, to be included in the study. The additional 37 respondents recruited through snowballing brought the total number of respondents to the required sample size of 163 respondents.

For qualitative data, 10 peer leaders from the original 126 members of the MSM network were purposively sampled to take part in the in-depth interviews. The peer leaders were the group leaders of the ten MSM peer groups that made up the MSM network.

Quality Control Processes

To control for quality, two managers considered experts on key populations from an NGO with a satellite office in neighboring Homabay County were given the questionnaires and requested to rate each response on a scale of 1 – 4 to determine the relevance of each question. The relevance was then determined using content validity index (CVI) which resulted in a value of 0.836. The questionnaires were pilot-tested twice on 15 MSM in a neighboring County within Nyanza Region. Data from the two sets of questionnaires were compared and used to refine the questionnaires, specifically with the addition of questions on self-rating by MSM on their attitudes towards HIV prevention and also on their behavior practices. Reliability was then determined using Cronbach's α which gave a value of 0.87.

Ethical considerations

This study involved the participation of human respondents on very sensitive and personal information; therefore ethical considerations were necessary to safeguard the privacy and well-being of those respondents. Approval to conduct the study was obtained from the Maseno University Ethics Review Committee (MUERC). The researcher presented the permit to the Director of KASH and Coordinator of the MSM network for permission to recruit their members into the study.

A consent form was issued to each participant which they signed voluntarily. They were told the intent of the study and assured of non-disclosure of their names or other forms of identity to ensure their anonymity and the confidentiality of the information they would provide. Respondents were also advised on their voluntary participation in and possibility of withdrawing from the study at any point should they wish to. Signed consent was obtained from all study participants after a detailed explanation of the purpose of the study.

Data collection

Data was collected using semi-structured questionnaires and an in-depth interview guide. An anonymous self-administered semi structured questionnaire covering different aspects of information on the study objectives was used to collect quantitative data from the study participants. The questionnaires had structured questions and the respondents only had to select from the given responses; but also had some

unstructured questions that did not have pre-determined responses to choose from and respondents were required to respond based on their opinions, individual knowledge and experiences. The questions were on: i) respondents' demographics and contextual characteristics, ii) respondents' perceptions, attitudes and beliefs concerning HAART, condom use and self-efficacy; and self-rating on attitudes towards HIV prevention; iii) respondents' behavior practices related to HIV risk; and self-rating on their behavior practices. All study respondents were issued with a questionnaire each which they were requested to complete by themselves and return to the Research Assistants without identifying who they were through their names.

An in-depth interview guide on areas that required detailed information that could not be covered by the questionnaires was used to collect recorded qualitative data. It was constructed to cover topical areas on access to healthcare, difficulties faced due to homosexual orientation, main areas of concern, substance use, male circumcision, and HIV risk and prevention. Probing was used during the in-depth interviews to obtain as much qualitative data as possible and also to enhance clarity of the responses. The interviewing and recording were conducted by one trained research assistant who worked for the MSM network; and were conducted for one respondent at a time.

Data management and statistical analysis

Filled questionnaires from the respondents were received by the research assistants, sealed in A4 envelopes in the presence of the respondents, then handed over to the researcher for safe custody as soon as they were brought back. The data was then given to a data entry assistant for processing. Quantitative data was captured in numeric variables from the questionnaires. The data was coded and entered in SPSS. Duplicating cases were checked and cleaned. Missing values were also checked and reentered. Consistency in the data was checked again to ensure the data was ready for analysis. Data from the electronic recorders was transferred to a password protected computer for transcription by the researcher, then erased from the recorders. The data was then grouped into themes and sub themes on Microsoft excel by the researcher.

Data analysis method

Quantitative data was analyzed statistically using SPSS (IBM SPSS Statistics, version 20). Both descriptive and inferential statistics were used. The SPSS program was used to run descriptive statistics on quantitative data, and the results presented using frequency tables, bar charts, statistical pies and representative characteristics or values, such as averages and percentages.

Univariate analysis was done for single variables which included attitudes of MSM towards HIV prevention and behavior practices associated with HIV risk; and involved frequency distributions and measures of central tendency. Bivariate analysis was done to determine associations between variables. It involved contingency table analysis and Chi square tests of significance ($p \leq 0.05$) to determine whether there was statistically significant association between the MSM's attitudes towards HIV prevention and their risk-taking behavior practices.

Qualitative data obtained from the in-depth interviews were analyzed manually using content analysis by exploration and categorization of themes.

Results

Socio-demographic characteristics of Respondents

Table 1: Socio-demographic characteristics of respondents

Characteristic	Description	Frequency	n	Percentage%
Age of respondents	15-19 yrs	19		11.7.0
	20-24 yrs	82		50.30
	25-29 yrs	40		24.50
	30-34 yrs	16		9.80
	35+ yrs	5		3.10
Marital status of respondents	Single	125		76.70
	Married	36		22.10
	Divorced	1		0.60
Religion of respondents	Catholic	75		46.00
	Hindu	1		0.60
	Muslim	26		16.00
	Protestant	49		30.10
	None	4		2.50
Nationality of respondents	Others	4		2.50
	Kenyan	158		96.90
No. of years in Kisumu	Foreigner	2		1.20
	< 10 years	68		41.70
	11-20 years	41		25.20
	21-30 years	39		23.90
	>30 years	4		2.50

Previous region of residence	Always Nyanza	68	41.70
	Central	5	3.10
	Coast	27	16.60
	Nairobi	32	19.60
	Rift Valley	11	6.70
	Western	13	8.00
Occupation of respondents	Casual laborer	20	12.30
	Commercial sex worker	22	13.50
	Salaried	27	16.60
	Self employed	28	17.20
	Unemployed	59	36.20
	Others	6	3.70
Current living situation	Currently married, living with a same sex partner	12	7.40
	Currently married, living with a spouse	18	11.00
	Currently married, not living with a spouse or same sex partner	12	7.40
	Not married, living with a female sex partner	5	3.10
	Not married, living with a same sex partner	22	13.50
	Not married, not living with any partner	86	52.80
	Sexual orientation	Bisexual	58
Gay		84	51.53
Heterosexual		12	7.40
Transgender		7	4.30
Transvestite		2	1.20

Majority of the respondents 122 (74.8%) were aged between 20 and 29 years; which would suggest a largely youthful population at risk. On marital status, most of the MSM 125(76.7%) were single; a finding which agrees with the predominantly youthful population above; while a total of 36 (22.1%) respondents were married with wives. This latter demographic is important because of the role it plays in explaining HIV risk. The results indicate that many respondents professed the Catholic faith, and in general most were Christians. On nationality of the respondents, of the majority of respondents (96.9%) were Kenyan. The study examined the period the respondents had stayed in Kisumu and found that 68 (41.7%) had stayed in Kisumu for 10 years or less, 41 (25.2%) had stayed in Kisumu for a period ranging between 11 and 20 years and only 43(26.4%) had stayed for over 20 years in Kisumu. The study further explored the region that they had come from and found that 68 (41.7%) had always been in Nyanza, 32 (19.6%) respondents were initially from Nairobi, 5(3.1%) came from Central, 27(16.6%) respondents were from the Coast, 13(8.0%) were from Western and 11(6.75%) were from Rift valley Region. These findings could point towards a transient but growing sub-population. On the occupation of the respondents, 59 (36.2%) were unemployed and only 27 (16.6%) were salaried employees.

The study also sought to find out the extent to which the MSM were involved in same sex relationships in their current living arrangements. The majority, 86 (52.8%) were single and living alone. Importantly though, 42 (25.8%) respondents reported that they were married at the time of the survey; and 5 (3.1%) were not married but were living with female sexual partners. A further 22 (13.5%) who were single reported that they were living with same sex partners. In terms of sexual orientation, majority 84 (51.5%) of the MSM identified themselves as Gay or Homosexual, and 58 (35.6%) identified themselves as bisexual (Table 1).

MSM Attitudes towards HIV Prevention

To determine whether the MSM were concerned about taking action to prevent the spread of HIV, their beliefs around the availability of treatment regimens (HAART) were explored because of the risk compensation associated with it; as were their beliefs around condoms for HIV prevention, and consistency in using condoms. Majority of the respondents (91.4%) had heard about ARVs, and (62%) believed in the effectiveness of ARVs for HIV treatment. This finding is important because it helps to categorize MSM's risk perception and consequently their initiative to prevent HIV transmission. These results are presented in Table 2 below.

Table 2: Opinion about effectiveness of ARVs for HIV treatment

Opinion on ARVs	Frequency	Percentage
	N	%
Effective	64	39.30
Completely effective	37	22.70
Somehow effective	49	30.10
Not effective	9	5.50

The MSM’s opinions were further sought on various beliefs on ARVs. From the mean responses of the findings presented in Table 3 below, respondents generally disagreed that ARVs could cure HIV (mean response of 1). They were almost split on whether everyone on ARVs recovered from HIV (mean response of 2) because of the small difference between those who agreed (40.5%) and those who disagreed (47.9%). They gave a mean response of 4 for the last two statements; which means they generally agreed that a healthy looking person should use condoms while on ARVs, and that someone on ARVs can infect another person with HIV. These mean responses show that overall, the MSM have the correct knowledge of the role played by antiretroviral therapy (ART) in the management of HIV and AIDS.

Table 3: MSM beliefs about ARVs

Beliefs		Agree	Undecided	Disagree	Mean Response
ARVs can cure HIV infection	Freq	39	14	107	1
	%	23.9	8.6	65.6	
Everyone on ARVs recovers from HIV	Freq	66	16	78	2
	%	40.5	9.8	47.9	
A healthy looking person should use condoms while on ARVs	Freq	130	9	21	4
	%	79.7	5.5	12.9	
Someone on ARVs can infect another with HIV	Freq	123	7	29	4
	%	75.4	4.3	17.8	

MSM largely believed in using condoms for HIV prevention. 120 (73.62%) respondents said that they believed in using condoms and 43 (26.38%) respondents said that they didn’t believe in using condoms with every sexual intercourse. On the frequency of condom use among the respondents, it is evident that the use of condoms by MSM is sporadic (Table 4); as only 41.1% of the respondents always use condoms; in spite of the fact that 73.6% of them reported that they believed in the consistent use of condoms.

Table 4: Belief in Consistency in condom use

Frequency of the use of condoms		
Frequency of use	Number	(%)
Always	67	(41.1)
Frequently	46	(28.2)
Few times	37	(22.7)
Very few times	10	(6.1)
Never	3	(1.8)
Total	163	(100.0)

The respondents’ possible reasons for inconsistent use of condoms were explored and from the findings, it emerged that most MSM didn’t feel restricted when using condoms. Most of their partners did not complain when they used condoms; and the use of condoms did not hinder their pleasure or satisfaction. These findings mean that there might be other salient reasons for the predominantly inconsistent use of condoms among the MSM.

Table 5: Possible reasons for sporadic use of condoms

Possible reasons for not always using Condoms			
		Frequency n	Percentage %
Feel restricted when using condoms	Yes	47	28.83
	No	116	71.17
Partners complain when you use a condom	Yes	57	35.00
	No	106	65.00
Condoms hinder pleasure or satisfaction	Yes	71	43.60
	No	92	56.40

The study sought to find out from the respondents the advantages of using condoms consistently and presented the findings in Table 6. It is evident from these findings that the majority of respondents (73.6%) reported correctly that the consistent use of condoms prevented STIs and HIV.

Table 6: Advantages of using condoms consistently

Advantages of using condoms consistently	Frequency n	Percentage %
Prevents STIs and HIV	128	73.60
Family planning method	27	15.50
None	12	6.90
Enjoyable	7	4.00

Further, the study sought to find out from the respondents some of the barriers that would prevent them from using condoms consistently. Those reasons are presented the findings in Table 7. The findings from that question were peculiar; because, most respondents reported that there was nothing that would prevent them from using condoms consistently and yet majority of them did not always use condoms with every sexual intercourse. From the varied reasons which were given by the respondents for the inconsistent use of condoms; none stood out as a major barrier.

Table 7: Barriers to consistent use of condoms by MSM

What would prevent the consistent use of condoms	Frequency n	Percentage %
Nothing	45	27.61
The need to get extra pleasure	31	19.02
Influence of alcohol	21	12.88
Abuse of drugs and substances	19	11.66
Awareness of partners HIV status	15	9.20
Cost of condoms	13	7.98
Hastiness in sex	11	6.75
Religious and mythical beliefs	9	5.52
Ignorance	5	3.07
Disagreement with client	4	2.45
Abstinence	3	1.84

From the qualitative data collected the following emerged when peer leaders were questioned on how MSM could prevent HIV infection.

Use of condoms and lubricants:

“We can protect ourselves from getting HIV through the proper use of condoms”

“MSM can prevent HIV infection by using good lubricants and condoms which prevent friction”

Male circumcision:

“Male circumcision is the best; it reduces our chances of getting infected with HIV and other STIs”.

“Male circumcision is a best practice because it helps maintain good reproductive health”.

“Male circumcision helps to prevent HIV and improve hygiene but it is not 100% effective”.

Being faithful to one partner:

“I believe the best way is to stick to one partner”.

“We can prevent HIV by being faithful to one partner”.

“HIV can be prevented by avoiding anal penetration with strangers whose status are not known”.

The study explored how the respondents rated their attitudes towards HIV prevention on a scale ranging from very positive to very negative. It is evident from the findings that the respondents (91.4%) have a cumulative positive attitude towards HIV prevention. Table 8 below shows the results of the self - rating of their attitudes towards HIV prevention.

Table 8: MSM Self-rating of Attitudes towards HIV prevention

Attitude towards HIV prevention efforts	Frequency n	Percentage %
Very positive	92	56.40
Positive	57	35.00
Average	11	6.70
Negative	2	1.20
Very Negative	1	0.60

Behavior Practices among MSM in Kisumu

In order to determine the risk-taking behavior practices among MSMs in Kisumu that expose them to HIV risk, respondents’ sexual demographics with regard to age and gender were taken. The findings show that most respondents (61.3%) had their first sexual intercourse (vaginal or anal); as well as their first sexual intercourse with a male (74.2%) between the ages of 11-20 years. The findings also show that about half of the respondents (51.5%) had a female as their first sexual partner. These demographics are useful in exposing the sexual behaviors of MSM that put them at a high risk of HIV. These findings are presented in Table 9 below.

Table 9: MSM sexual demographics

		Frequency n	Percentage %
Age at first sexual intercourse	<10 years	13	8.00
	11 - 20 years	100	61.30
	21 - 30 years	4	2.50
	Don't know	46	28.20
Gender of first sexual partner	Male	76	46.63
	Female	84	51.50
Age at first sexual intercourse with a male	< 10 years	12	7.40
	11 - 20 years	121	74.20
	21 - 30 years	17	10.40
	>30 years	13	8.00

Finding show that 97(59.5%) of respondents had had UAI. It was also found that 80(49.1%) respondents had engaged in UAI in the 6 months prior to the study while a slight majority of 83(50.9%) had not.

Table 10: Risk-taking behavior practices

	Response	Frequency n	Percentage %
Ever had unprotected anal sex	Yes	97	59.5
	No	66	40.5
Had unprotected anal sex in past 6 months	Yes	80	49.1
	No	83	50.9
Need to be high to engage in anal sex	Yes	55	33.7
	No	108	66.3
Have a stable or regular partner	Yes	98	60.1
	No	65	39.9
Ever had unprotected vaginal sex	Yes	78	47.9
	No	85	52.1
Have female sexual partners	Yes	74	45.4
	No	89	54.6
Ever paid or been paid for sex	Yes	95	58.3
	No	68	41.7

The study sought to find out if the respondents had ever engaged in unprotected vaginal sex. The findings show that almost half of the respondents (47.9%) had engaged in unprotected vaginal sex. In relation to this, the respondents were asked if they had female sexual partners and the findings presented in Figure 1 below which reveals an almost identical result as that of the previous question; with about half of the respondents (45.4%) reporting that they had female sexual partners.

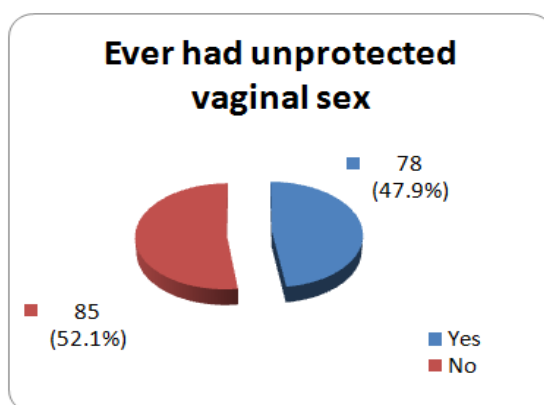


Figure 1: Ever had unprotected Vaginal sex

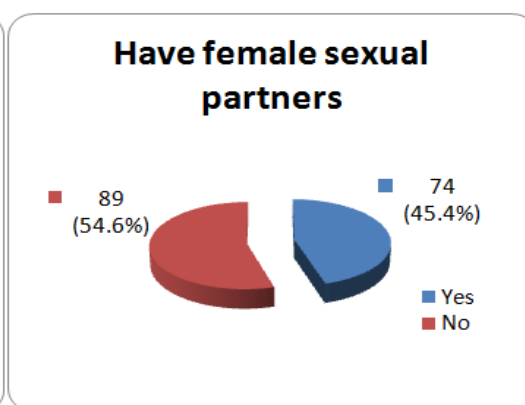


Figure 2: MSM with female sexual partners

In order to establish if the practice of transactional sex was prevalent among MSM in Kisumu City, the respondents were asked whether they had ever paid or been paid for sex. From the findings, it is apparent that most respondents (58.3%) had engaged in some form of transactional sex as shown in Table 10.

This finding was confirmed during IDIs when respondents were asked the reason why men decide to have sex with men.

“In my view, I would say that the main reason why men decide to have sex with men is because of the need to make money. This is as a result of poverty which is highly common in this area. Though in some cases some men engage in sex with fellow men due to natural orientation”

“It is tough for us young men to get jobs and yet we need money; but through this practice you find it easier to meet clients who are ready to pay well to have sex with them”

“Many young men these days become MSM in order to meet their financial needs since jobs are not there”. It is either that or riding bikes which they can’t even afford to buy in the first place”.

To determine the practice of multiple sexual partnerships, respondents were asked the number of sexual partners they had had in the six months before the study. The findings show that the majority of respondents had had more than one sexual partner in that period; ranging from two to more than seven partners as is shown in Table 11 below. Similarly, the study explored the places where the MSM found sexual partners and found that night clubs (54.6%), followed by referred contacts (47.2%), were the most popular sources of sexual contacts. The latter source reveals a sub-population that is clearly involved in a network of multiple sexual partnerships. The findings are presented below in Table 12.

Table 11: Number of sexual partners over the past 6 months

Number of sexual partners over the last 6 months	Frequency n	Percentage %
1	46	28.22
2	39	23.93
3	21	12.88
4	18	11.04
5	7	4.29
6	14	8.59
7	3	1.84
>7	15	9.20

Table 12: Places to find sexual partners

Places to find sexual partners	Frequency n	Percentage %
Night clubs	89	54.60
Bars	46	28.20
Referred contacts	77	47.20
Social media	20	12.30
Class mates	1	0.60

The study examined cases of substance use among the respondents to establish whether it was a routine practice among them, the proportion that depended on getting ‘high’ or intoxicated on alcohol and other substances in order to engage in anal sex; as well as the kind of substances that they were using. Results in Table 10 show that only 55 (33.7%) respondents reported that they needed to get ‘high’ to engage in anal sex. The study examined the MSM’s dependence on alcohol and drugs by asking about the frequency and quantity of alcohol intake as well as their use of drugs. Findings show that more respondents (40.1%) consumed alcohol more than four times over the past 4 weeks and more than 4 bottles of alcohol were taken by 44.2% of respondents at their last sexual encounter; a finding indicative of binge drinking amongst the MSM. A higher proportion of respondents (34.4%) had taken mood enhancing drugs in the 3 months before the study; and marijuana was the drug mostly taken by respondents in the 6 months before the study. The respondents had also taken other substances like Khat and “Kuber” in the past 6 months. These results are presented in Table 13 below.

Table 13: Characteristics of alcohol and drug dependence by MSM

Characteristic	Description	Frequency n	Percentage %
Frequency of alcohol consumption over the past 4 weeks	Two times	40	24.5
	Three times	23	14.1
	Four times	23	14.1
	> four times	45	27.6
	None	32	19.6
Number of bottles of alcohol taken at last sexual encounter	Two	37	22.7
	Three	23	14.1
	Four	16	9.8

	> four	52	31.9
	None	35	21.5
Have you taken mood enhancing drugs in the last 3 months	Yes	56	34.4
	No	107	65.6
Type of drugs used in the past 6 months	Viagra	13	8
	Marijuana	48	29.4
	Cocaine	11	6.7
	Ecstasy	2	1.2
	Other drugs	44	27

In the IDIs, respondents also pointed out that there was a high rate of usage of illicit substances among MSM, this is what was said:

“Some Men who become MSM due to other reasons other than natural orientation use drugs to motivate them to engage in sex with men because it is not natural for them. Such cases are common for men who are bisexual or may have engaged in anal sex because of poverty or other reasons”

“Drug and substance abuse must be addressed, because it is a big problem in the MSM community”.

“Use of alcohol and drugs is the main contributor to risk because using them helps us to reduce stress and conquer stigma and discrimination”.

To cap this objective, the respondents were asked to rate their sexual behavior practices on a scale of very poor to very good. From the findings, most respondents (49.1%) rated their behavior practices as average; 33.8% rated their behavior as good, while only 17.2% rated their sexual behavior practices as poor. These results are presented in Table 14 below.

Table 14: MSM self-rating of behavior practices

Rating	Frequency n	Percentage (%)
Very good	13	8.00
Good	42	25.80
Average	80	49.10
Poor	26	16.00
Very poor	2	1.20

Association between MSM Attitudes towards HIV Prevention and their Behavior Practices.

The study sought to find out whether there were associations between the MSM Attitudes towards HIV Prevention and their Behavior Practices. Table 15 presents the cross tabulation of MSM self-rating on their attitudes towards HIV prevention and their behavior practices.

Table 15: Cross tabulation of MSM attitudes towards HIV prevention and behavior practices

Rate prevention	Attitude towards HIV	Rate behavior practices					Total
		Very Poor	Poor	Average	Good	Very Good	
Very negative		0	0	1	0	0	1
		0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
Negative		0	1	0	1	0	2
		0.0%	50.0%	0.0%	50.0%	0.0%	100.0%
Average		0	3	7	1	0	11
		0.0%	27.3%	63.6%	9.1%	0.0%	100.0%
Positive		0	7	25	19	6	57
		0.0%	12.3%	43.9%	33.3%	10.5%	100.0%
Very positive		2	15	47	21	7	92
		2.2%	16.3%	51.1%	22.8%	7.6%	100.0%

Out of a cumulative 149 respondents who rated their attitudes towards HIV prevention as positive, only 55 (33.8%) rated their behavior practices as good. Based on the figures above, the generally positive attitudes towards HIV prevention by MSM is not a significant factor in determining their behavior practices. The study went on to confirm if there was an association between MSM’s attitudes towards HIV prevention and their behavior practices using a chi square test ($p \leq 0.05$) and found that there was no statistically significant association ($p=0.745$) between MSM’s attitudes towards HIV prevention and their behavior practices.

Discussion

The Attitudes of MSM in Kisumu City towards HIV Prevention

This study sought to find out the attitude of MSM towards HIV prevention efforts. It established that in general, the MSM have a positive attitude towards HIV prevention. The MSM's attitudes towards HIV prevention were determined by establishing whether there was HAART-related risk compensation among them; which would lead them to perceive low or no risk of HIV given the availability of treatment. It was also determined by finding out the prevalence of condom use among MSM. In this study, the opinions expressed by MSM regarding HAART indicate that whereas they are fairly knowledgeable about ART, a small proportion (49%) still think that ARVs can cure HIV. However, the majority of respondents (77.9%) are aware that a person on ART can infect another one with HIV. This means that most MSM in Kisumu City recognize that the availability of treatment does not eliminate the risk for HIV infection. This finding can be attributed to the differences in the levels of HIV risk knowledge among the respondents. A study conducted in Kisumu found an association between ART-related risk compensation and HIV prevalence in men. The study also established that there was a high belief in the general population of Kisumu that ART cured HIV and AIDS [13]. Similarly, another study found that because of HAART, MSM perceive less threat of HIV and AIDS, less need for safe sex, and high effectiveness of HAART in curing AIDS [12]. The differences depicted between those studies and the current study can be ascribed to the fact that there has been a lot of HIV awareness campaigns and provision of Patient Support in the years since those studies were conducted, which may have changed the perceptions on ART within the population of Kisumu.

This study has been able to establish that most MSM in Kisumu City believe in the use of condoms for HIV prevention; however, the results also show that consistency in condom use is still a challenge within that population. This finding concurs with that of NACC [14] in which it was reported in the Kenya AIDS Response Progress report of 2014 that condom use among MSM remained low even though there had been an increase from 54.49% in 2011 to 68.8% in 2013. On the frequency of condom use, only 67% of MSM in Kisumu City always use condoms. Again, this finding concurs with the 2014 finding by NACC in which an estimated 68.8% of MSM reported using a condom the last time they had anal sex. The finding on the inconsistency in condom use by MSM in Kisumu City can be compared with that of another study which found that the rate of condom use varied with types of sexual partners; and in the current study too, respondents reported have different types of sexual partners [16], although this study did not investigate the relationship between inconsistent condom use with partner types. The possible reason for this varied rate of use with different partners may be due to different levels of risk that MSM perceive with different types of partners.

This inconsistency in condom use; when coupled with lack of treatment for STIs and more than one sexual partner can be a catalyst for spread of HIV infection. In addition, the current study has established that the decision to use or not to use a condom is influenced by a multiplicity of factors; including perceived hindrance of pleasure and satisfaction by partners, availability and cost of the condoms, influence of alcohol and other substances, hastiness in sex, religious and mythical beliefs, ignorance, lack of awareness of partner's HIV status, and disagreements with clients. This means that the knowledge that the use of condoms can prevent HIV infection in and by itself is not enough; but actual consistent use is determined by other factors; a finding consistent with that of NACC [14], that even where condoms are widely available, that availability does not guarantee their use.

Another finding that emerged from the current study was that MSM in Kisumu City reported their main issue of concern to be their rights as a group; and not risk of HIV infection. When asked about how MSM can protect themselves from contracting HIV, it was found that their main issue of concern for the MSM was their right of association which could only be granted at the policy level. From this, it can be deduced that at least to some MSM, HIV prevention is not as urgent a priority as their right of association.

Behavior Practices Associated with HIV Risk among MSM in Kisumu City

The current study sought to find out the behavior practices by MSM that put them at risk of HIV infection. The study has established that MSM in Kisumu City are actively engaged in risky sexual behavior practices that expose them and their partners to new HIV infections; this, despite their relatively positive attitude towards HIV prevention.

The practice of UAI was found to be rampant among MSM in Kisumu City. It is one of the riskiest sexual behaviors reported to be responsible for the spread of HIV. A study by Rucinski *et al.*, [17] confirmed that HIV transmission among MSM is largely driven by UAI, which spreads HIV more efficiently than other forms of sexual activity. The present study has found that a considerable percentage of the MSM have recently engaged in UAI despite reporting that they largely believed in the use of condoms for HIV prevention.

The use of substances was found to be a routine behavior practice among MSM in Kisumu City. Alcohol, illicit drug use, and intravenous drug injecting by MSM are behavior practices associated with HIV risk. Substance use and abuse have been reported as influencing decision making leading to behavioral

disinhibition and increased sexual risk behavior. It was found in this study that binge drinking and drug dependence are relied upon by MSM to reduce stress and to conquer the discrimination and stigmatization associated with their sexual orientation. This finding concurs with that of Bourne and Weatherburn, [18] who found that a sense of belonging, coping with everyday problems and the enhancement of pleasure, all feature in motivations for alcohol and drug use by MSM. Similarly, Colfax and Shoptaw [19] found that some MSM have trouble having sex without getting 'high' first, and for some, drug use provides a sense of community and bonding. In the current study, it was established that MSM consumed large amounts of alcohol at their last sexual encounter. This finding is comparable to study conducted in Cape Town, South Africa, which established that practicing anal intercourse was related to drinking before sex and having a partner who drank before sex [20].

In retrospect however, less than half of the MSM reported that they needed to be high from alcohol and other drugs so as to engage in anal sex. While this finding is encouraging, those among them who rely on these substances pose a high enough risk for HIV transmission to their partners and the rest of the population because substance use can serve as a trigger or an excuse for unprotected sex [21]. Another reason for this finding may be attributed to the claim by many MSM that those who rely on alcohol and other drugs became MSM due to reasons other than natural orientation; the main one being financial motivation.

Multiple and indiscriminate sexual partners is another risk-taking behavior practiced by MSM in Kisumu City. This study has established that most of the MSM do not have stable sexual partners. The finding concurs with the WHO Report [22] which showed that many MSM have multiple sexual partners of all types – regular, casual, and commercial. Whereas the findings of this study show that more than half of the MSM have regular sexual partners, the study did not ask whether 'regular' was synonymous with 'one' partner. It is important to note that while some of the MSM in the study are married men, many others who are clients to the commercial MSM are also in heterosexual relationships and do not wish to be identified as MSM. This depicts a group that either does not know the risk of engaging in such behavior, or knows but does not attach much importance to the risk inherent in that behavior.

Having both male and female sexual partners by MSM is a behavior practice that exposes them to HIV risk. It has been found in the current study that the majority of MSM in Kisumu City are bisexual, or transformed from being heterosexual to homosexual, had their first homosexual encounters between the ages of 11 – 20; and that most had females as their first sexual partners. A study by UNAIDS [23] similarly reported that most MSM also have sex with women; and the current study confirmed this to be the case among the MSM in Kisumu City. It has been established in this study that MSM in Kisumu City are also actively involved in sexual relationships with women; most of who are at risk of pregnancy. The study has found that the number of MSM in Kisumu City who have ever engaged in unprotected vaginal sex almost exactly mirrors the number of those who also have female sexual partners at about 45%. This finding is in agreement with that of the NACC and NASCOP [9] report which found that nearly 40% of all MSM studied in Nairobi and Kisumu have ever been married to women or had sexual relationships with women.

These findings have far reaching public health implications. They demonstrate that MSM are not sexually detached from the rest of the population; and attest to the sexual behavior practices by MSM that increase the risk of HIV in the general population of Kisumu City because, the transmission is by both homosexual and heterosexual routes and further, can be propagated through Mother-To-Child Transmission (MTCT). In a study on MSM as presented in VCT data in Kenya, it was also found that most MSM in Kenya also have female sexual partners; indicating a potential spill-over of the epidemic to the female partners of MSM and their children [24].

Apart from bisexual behavior among MSM, engaging in transactional sex either as clients or sellers exposes those involved to HIV risk. The current study has established that a number of MSM in Kisumu City are actively engaged in the practice of transactional sex; and engage in sex with fellow men for financial gain either in favor of themselves or their partners. This is in agreement with the Horizons MSM Studies conducted in developing countries including Kenya (Nairobi and Mombasa), which demonstrated that the prevalence of men selling sex to other men is high; as was established by Geibel *et al.*, [25]. It is important to profile transactional sex among MSM because of the HIV risk implicit in engaging in that behavior. Transactional sex exposes MSM to HIV because it involves intercourse with different people, mostly of unknown HIV status; it exposes them to different STIs, and also because the element of paying puts the seller at a disadvantage in terms of negotiating for condom use. This is because most clients of male sex workers prefer not to use condoms and are willing to pay extra for the concession.

The current study established that the HIV prevalence among MSM in Kisumu City is approximately 24.5%. This was established from 40 (24.5%) MSM who reported that they were HIV positive.

Association between Attitudes towards HIV Prevention and Behavior Practices of MSM in Kisumu City

The results of the MSM self-rating of their attitudes towards HIV prevention were cross tabulated with their rating of risk-taking behavior practices to find out if there was any association between them using chi-square tests of independence at 0.05 level of significance. The chi-square test produced a value of 0.745. From this result, the study has established that there is no significant association between MSM attitudes towards HIV prevention and their behavior practices. A similar study on the knowledge, attitude and practice on HIV among MSM in Belgaum similarly found that although MSM had good knowledge of HIV transmission, symptoms, treatment and prevention, most of the MSM still did not practice prevention and continued to engage in sexual risk-taking practices [26]. The inference that can be drawn from the test carried out in this study is that a good attitude towards HIV prevention does not necessarily produce an outcome of less risky behavior by MSM.

Conclusions

We have demonstrated that MSM in Kisumu City have a positive attitude towards HIV prevention; however, inasmuch as the MSM generally have a positive attitude towards HIV prevention; and indeed are familiar with different methods of preventing HIV infection; the positive attitude does not entirely translate to health-seeking behavior in terms of their sexual behavior practices. The risk-taking behavior practices of MSM are influenced by other socio-cultural and economic factors which in turn undermine prevention efforts.

MSM in Kisumu City are actively engaged in high risk behavior practices that can increase their odds of acquiring HIV and transmitting it to the rest of the population. Most MSM in Kisumu City are young; start their sexual practices at a very early age; engage in unprotected sex with both men and women, practice commercial sex and UAI; which is known to be the most efficient route of sexual transmission of HIV. The practice of habitual substance use exists but has not been found to be alarming amongst the MSM in Kisumu City. They routinely indulge in alcohol and illicit substances and engage in unprotected sex with partners of unknown or opposite HIV status, all of which increase HIV risk. It has also been established that many MSM in Kisumu believe that it is more risky not to use a condom with a woman than it is with a man; which also complicates prevention efforts.

Priority should be given to the identification and recruitment of MSM into HIV training programs and then meaningfully involving them in spearheading prevention campaigns so as to encourage the MSM to come out, embrace and play the key role in HIV prevention. Additionally, there should be an approach that is centered on specific behavior change techniques which are tailor made to aid in the conversion of positive attitudes towards prevention into effective risk-reduction behavior practices that will actually ameliorate prevention of HIV transmission. Of importance here are condom self-efficacy and negotiation skills which have proven successful among other groups at risk.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

JJO designed, carried out the survey and participated in the drafting of the manuscript. WO designed the study and participated in the drafting of the manuscript. BA participated in designing the study. ENM participated in drafting the manuscript. JJO, WO, BA and ENM performed the statistical analysis. All authors read and approved the final manuscript.

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