



**Behavioral Characteristics of Adult Patients on Highly Active Antiretroviral Therapy (HAART)
in Uganda**

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ABSTRACT

Background: Behavioral factors have an impact on patient adherence and treatment outcomes. Specific information on behavioral factors is however minimal at health facilities in resource settings. Such information is vital in helping health facilities to provide targeted interventions. **Method:** Adherence surveys (n=783) were carried out to assess self-reported condom use, alcohol intake in the past month and disclosure in patients 19 years and above on HAART in 19 HIV clinics. Health workers were trained on how to administer the survey questions. The questions aimed at determining risky behaviors and disclosure of HIV illness. **Results:** More than half of the patients (59%) do not use condoms in the 19 HIV clinics. 30% reported using condoms always. Most of the patients (79%) on HAART had not taken alcohol in the past one month suggesting that most patients on HAART did not use alcohol. The majority of the patients (99%) disclosed their status with implications for better adherence and increased psychosocial support. **Conclusion:** It may be important to relate condom use, alcohol intake and disclosure to viral suppression and also advocate for comprehensive positive prevention at the HIV clinics. There is need to carry out an in-depth analysis of alcohol intake among HAART patients. Steps should be taken to address these behavioral issues in support groups and community programs.

Keywords: PLHIV, sexual behaviors, alcohol use, disclosure

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Introduction

About 10% to 67% of people living with human immunodeficiency virus (PLHIV) do not consistently practice safe sex¹⁻⁶. Condom use in Africa is reportedly between 11-25%⁶. Some concerns have been raised that improved access to HAART could increase HIV risk behaviors creating new threats of resistance to existing anti-retroviral therapies and increasing HIV incidence⁶⁻⁸. There is a dearth of information on the sexual behaviors of PLHIV on HAART^{6,8}. More so, few studies have been done in Africa on the sexual behaviors of PLHIV yet understanding sexual behaviors is very important especially in Africa^{4,9}. Knowledge about sexual behaviors and other behavioral characteristics of PLHIV helps to target interventions to reduce transmission¹⁰.

Alcohol use is common among PLHIV and its use is reported at about 30-50%¹¹⁻¹². Alcohol use augments

unsafe sexual behaviors in HIV negative individuals by promoting inconsistent condom use¹¹⁻¹³. Knowledge of alcohol use among PLHIV is important as alcohol consumption has been associated with poor adherence, lack of viral suppression, worsening co-morbid conditions and mortality¹¹.

Disclosure rate to partners is between 42-100% in high income countries and 16.7-86% in low income countries¹⁴. Non-disclosure has also been associated with risky sexual behaviors in HIV infected people¹⁵. Many PLHIV do not disclose their status to their sexual partners and are unlikely to use condoms more than those who have disclosed and this poses a risk in terms of HIV transmission^{16,17}. Disclosure of one's sero-status is an important part of the care and support of PLHIV as it promotes coping and decision making including promotion of safe behaviors^{14, 17}. However, failure to disclose has often been associated with risks of violence and stigma and discrimination¹⁴⁻¹⁷.

The aim of this study was to determine the behavioral characteristics of patients with HIV on HAART in faith based clinics Uganda specifically alcohol use, disclosure and safe sex practices.

Methods

In Uganda there are about 1.1 million PLHIV and 200,000 are on treatment¹⁸. The faith based and stand alone HIV clinics provides high quality HIV care and treatment to 18 rural and under-served communities in the Northern, Southern, Central, Eastern and Western regions of the country with over 36000 PLHIV on HAART.

As part of program evaluation, adult patients 19 years and above on antiretroviral treatment for 9-15 months were selected to participate in this study. We assessed safe sex practices and alcohol intake by looking at condom use frequency, disclosure and alcohol intake frequency.

Data was collected using an Adherence Survey that has been piloted, validated and used in six African Countries. The survey was designed to identify specific indicators that influence adherence to antiretroviral therapy and impact on the quality of life including; Family and Support, and Lifestyle and Risk Behaviors. A sample of 783 patient adherence surveys were done to assess disease, treatment knowledge and services received between August 2008 and March 2009. Data was collected using an adherence survey questionnaire. Adult patient 19 years and above were randomly selected to participate in the study.

This survey was done as part of a routine quality improvement program. Adherence counselors and nurses at the HIV clinics were trained to administer the questionnaire. Informed consent forms were provided to the patients, after full explanation from the health staff about the survey. The patients read through the consent and clarity was provided. The patients appended their signature indicating consent to participate in the survey. Each patient had the right to withdraw at anytime in the course of the survey.

In screening for alcohol use, participants were asked whether they took alcohol in the past month or not. To find out the sexual behaviours, we asked about the number of partners in the last one month. Participants were also asked whether or not they used condoms categorized as 'always', 'sometimes' and 'never'. Disclosure of HIV status was assessed on the basis of whether they had told someone or not.

Results

Out of the 757 patients surveyed 237 (31.31 %) were male and female 520 (68.96).

Condom use

More than half of the patients (59%) did not use condoms. 30% reported using condoms always and 11% used condoms occasionally in the past month.

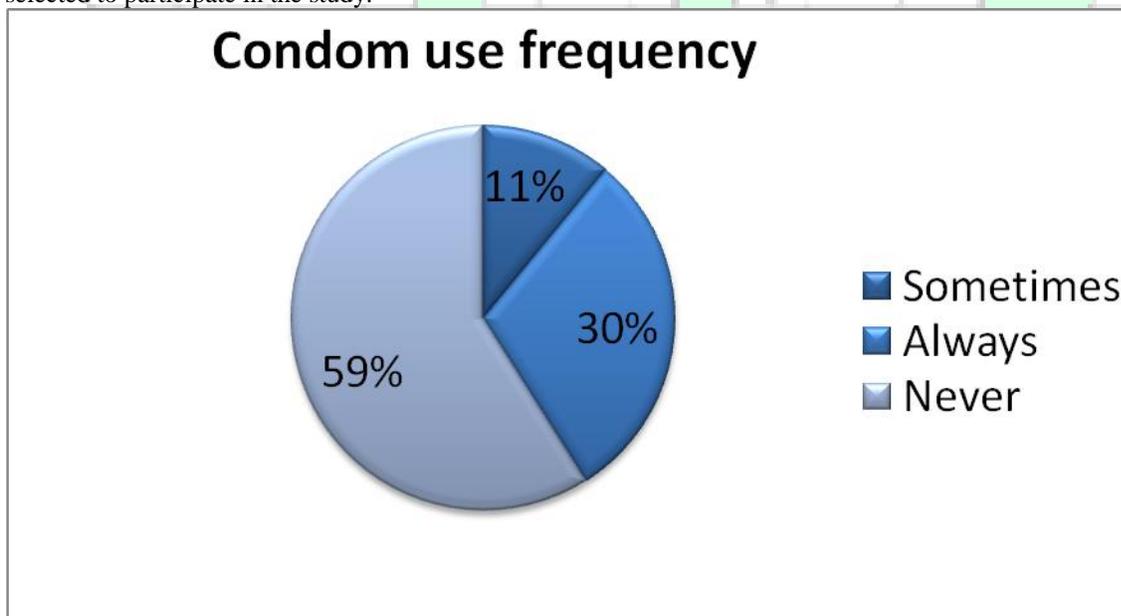


Fig 1.0: Condom use frequency

Sexual activity

Out of the patients surveyed 55% reported abstinence in the last one month. Of those sexually active, and had multiple partners 8.02% were men compared to

0.58% among women. Table 1.0 below shows the number of sexual partners in the last one month.

Number of sexual partners in last one month		
	n	Percent
None	418	55.07
One partner	319	42.03
Two or more partners	22	2.90
Total	759	100

Alcohol use

Most of the patients (79%) on ART in the HIV clinics had not taken alcohol in the past one month. 10% took

alcohol once in the past month and 11% took alcohol more than once in the past one month. Table 2.0 below shows the frequency of alcohol intake in the past month.

Frequency of alcohol drinking in past month		
	N	%
Never	516	79.26
Once a month	65	9.98
More than once a month	70	10.75
Total	651	100

Disclosure

The majority of the patients (99%) had disclosed their status to someone. Table 3.0 below shows the HIV disclosure status.

HIV Status Disclosure	

	n	Percent
Disclosed	765	99.22
Not Disclosed	6	0.78
Total	771	100

Discussion

In general, in our study sexual activity was reportedly low as 55% of the respondents reported abstinence in the past one month. Another study found that 53% of the PLHIV had abstained from sex in the last 6 months the percentage being higher among women than men⁶. In our study there was only 30% consistent condom use among those who reported being sexually active. This is not too different from the rates of condom use other studies have reported before being between 11-25% but lower than other studies where the rates were above 40%^{6,8}.

In our study about 8% of those who were sexually active reportedly had more than one sexual partner in the last month and men were the majority. This is consistent with other findings where 8% of those sexually active had more than one partner⁸. In another study the respondents with multiple sexual partners used condoms more compared to 53.5% those with one partner⁶. In our study, we also did not establish whether the respondents with multiple partners were engaging in unprotected sex with partners of known serostatus to determine risk of transmission if discordant or risk of secondary infections if sero-concordant.

In this study alcohol use was at 21% in the past one month and this was slightly lower than that reported in other studies of between 30-50% suggesting that most patients on HAART do not use alcohol^{11,12}. One weakness of our study is that we relied on self reporting which may lead to bias or underreporting and the level of intake was difficult to assess. In other studies use of alcohol at all levels was associated with unprotected sex and having multiple sex partners^{6,9,13,16,19}. Thus, there is need to educate PLHIV on substance use and abuse.

In our study disclosure was at 99% although not specifically linked to disclosing to a partner or spouse which might be lower and within the range of other studies in low income countries of between 16.7-86%¹⁴. However, on the whole this rate is very high because most patients are actually encouraged to disclose to a treatment buddy before starting HAART. This has implications for better adherence and increased psychosocial support. Studies have related disclosure and risky behaviors and found disclosure was associated with consistent condom use^{4,9,17}. In addition, those who did not disclose were more likely to have

unprotected sex with multiple discordant partners^{15,17}. Interestingly, other studies found that both disclosure and non-disclosure were not associated with risky sexual behaviors¹.

One reason for non-disclosure was found to be fear that it would result in marital and family problems¹⁹. In West Africa, few women disclosed their HIV status to their partners and found it difficult to have protected sex⁶. This is not surprising as most women often face gender based violence and are blamed by their partners for an HIV positive diagnosis. In another study women were more likely to have unprotected sex due to gender power differences in sexual relationships¹. In most low income settings women are often placed in a subordinate role due to lack of access to resources when compared to men. 63% of women in a study in the US reported consistent condom use²². However, this rate of condom use is much higher than the overall rate in our study possibly because it was done in the US which does not have similar characteristics with Africa.

A nationally representative survey in Uganda showed that 77% of PLHIV lived in rural areas⁴. However, this is expected as 87% of Uganda population lives in rural areas the highest proportion in Sub Saharan Africa²¹. A study in South Africa, showed that most of the patients were from an urban site (69.5%) and mostly female (76.4%)⁹. This is in contrast to our study where patients are predominantly rural but similar in that majority (65%) are also women. The study found high rates of condom use in the urban site at 81% for men and 78% for women compared to 52% and 46% for men and women respectively in the rural site⁹. The rate of condom use in the HIV clinics we surveyed is much lower than in the rural site in the South African study. On the whole the low rate of condom use in our study may be explained by the fact that most PLHIV are from rural sites and maybe also reflects disparities in access to prevention.

Some studies have been carried out before to ascertain if access to HAART increases HIV risky behaviors. Being on HAART was found not to have influence on risky sexual behavior^{1,2,4,6,20}. However other studies have found that a higher CD4 cell count is associated with increase sexual risk behavior¹. In contrast, a prospective cohort study showed that consistent

condom use increased after 6 months on HAART from baseline and decreased unprotected sex with seronegative partners or those whose status was unknown⁸. In our study we did not draw these associations as it was a descriptive study on the behavioral characteristics of PLHIV on HAART. More research needs to be done to tease out some of these associations.

In a study on sexual behaviors among HIV-infected women after HAART initiation there was a higher risk of unprotected sex after HAART initiation than prior to initiation²³⁻²⁴. Increases in risky sexual behaviors may come about with increased functionality on HAART although the study found that there was no association between changes in CD4 count and consistent condom use²³. However, the study was only done among women and might not be representative of the general population. Others have attributed the increase in protected sex after HAART initiation to the reason that PLHIV might perceive that they have no risk of transmission if their viral load is low^{2,24}. However, another study found that beliefs about ART's effects on transmission, viral load and adherence did not influence risky sex sexual behaviors⁷.

Various authors assert that PLHIV are more likely to engage in unprotected sex with other HIV positive partners than with HIV negative partners^{1,10}. This places PLHIV at risk of contracting secondary infections and increasing disease progression. When one has more partners or increased sexual episodes the risk of unprotected sex was found to be high¹. In addition, a man's desire for children was found to be a risk promoting factor for HIV positive women¹. In this study we did not explore the beliefs surrounding unprotected sexual behavior and whether this was influenced by beliefs about HAART or not.

Reasons for non-condom use were partner trust, lack of access to condoms, dislike for condoms, the belief that condom use decreases pleasure, partner refusal to use condoms, and lack of knowledge about HIV and condoms^{1,4,17}. In India consistent condom use with regular partners was hampered because PLHIV believed that condoms were not necessary if both partners were HIV positive and the desire to have a child^{11,19}. In our study we did not look at the factors associated with non-condom use. More research needs to be done on this and other socio-cultural factors associated with risky sexual behaviors in our HIV clinics.

Some studies have shown that those who practice safe sex are also likely to adhere to HAART¹⁰. If this is true then of concern in our study, is the fact that we found out that 11% of those sexually active sometimes use

condoms but not always. These patients may also have problems with adherence¹⁰. The circumstances under which they use condoms were not explored and there might be need to explore the reasons for the selective use.

Behavioral interventions with PLHIV are useful in reducing risky sexual behavior³. Other authors suggest that a combination of HAART and prevention interventions is effective in reducing risky sexual behaviors⁸. A number of positive prevention strategies have proven to be effective in reducing risky sexual behaviors although more needs to be understood about sexual behaviors within specific HIV infected populations in order to tailor interventions.

There is need to scale-up partner testing in HAART programs so that in cases of discordancy there can be no transmission including infection with drug resistant strains of HIV. Prevention messages for PLHIV should emphasize that being on HAART does not eliminate the risk of HIV transmission and messages need to be reinforced periodically in the patient counseling and health education sessions. Prevention messages should also address alcohol and substance abuse among PLHIV. Safe disclosure should be encouraged, accompanied with community education messages on violence prevention and addressing stigma and discrimination. Couples' testing and counseling must be encouraged to reduce HIV related violence. More research needs to be done on the characteristics of PLHIV on HAART to be able to design effective positive prevention messages and encourage the adoption of behaviors that promote general well-being. In general, positive prevention strategies must be tailored according to the needs of the population at the local level.

References

1. Crepaz, Nicole and Marks, Gary. Towards an Understanding of Sexual Risk Behavior in People Living with HIV: A Review of Social, Psychological, and Medical Findings. *Editorial Review*. 25 January 2002 - Volume 16 - Issue 2 - pp 135-149
2. Crepaz, N., Hart, T.A. and marks, G. Highly active Antiretroviral Therapy and Sexual Risk Behavior: A Meta-analytic Review. *JAMA*, July 14, 2004-Vol 292 no.2 Accessed 12 December 2011
3. Crepaz, N., Lyles, C.M., Wolitski, R.J., Passin, W.F., Rama, S.M., Jeffrey H. Herbst, J.H., Purcella, D.W., Robert M. Malow, R.M. and Stall, R._ for the HIV/AIDS Prevention

4. Research Synthesis (PRS) Team Do prevention interventions reduce HIV risk behaviors among people living with HIV? A Meta-analytic Review of Controlled Trials. *AIDS* 2006, 20:143-157
5. Bunnell, R., Opio, A., Musinguzi, J., Kirungi, W., Ekwaru, P., Mishra, V., Hladik, W., Jessica Kafuko, Madraa, E. and Mermin, J. (2008) HIV transmission Risk behavior Among HIV-infected Adults in Uganda: results of a nationally representative survey. *AIDS* 2008, 22:617-624
6. Michael Stein, Debra S. Herman, Elizabeth Trisvan, Paul Pirraglia, Patricia Engler, Bradley J. Anderson. Alcohol Use and Sexual Risk Behavior Among Human Immunodeficiency Virus-Positive Persons. *Alcoholism: Clinical and Experimental Research*. Volume 29, Issue 5, pages 837-843, May 2005
7. Moattia, J.P Prudhomme, J., Traore, D.C, Anne Juillet-Amaric, A.J., Hortense Aka-Dago Akribic, H.A., Msellatid, and the Côte d'Ivoire Drug Access Initiative Socio-Behavioural Evaluation Group* Access to ARVT and Sexual Behaviors of HIV-Infected patients aware of their serostatus in Cote D' Ivore. *AIDS* 2003, 17 (suppl 3):S69-S77
8. Stanley Luchters, Avina Sarna, Scott Geibel, Matthew F. Chersich, Paul Munyao, Susan Kaai, Kishorchandra N. Mandaliya, Khadija S. Shikely, Naomi Rutenberg, and Marleen Temmerman. Safer Sexual Behaviors after 12 Months of Antiretroviral Treatment in Mombasa, Kenya: A Prospective Cohort. *AIDS Patient Care and STDs*. July 2008, 22(7): 587-594. doi:10.1089/apc.2007.0247
9. Bunnell, R, Ekwaru, J.P., Solberg, P., Wamai, N., Bikaako-Kajura, W., Were, W., Coutinho, A., Liechty, C. and Madraa, E., Rutherford, G and Mermin, J. Changes in sexual behavior and risk of HIV transmission after antiretroviral therapy and prevention interventions in rural Uganda. *AIDS* 2006, 20:85-92
10. Lurie, M., Pronyk, P., De Moor, E., Heyer, A., De Bruyn, G., Struthers, H., McIntyre, J., Gray, G., Marinda, E., Klipstein-Grobusch, K., and Martinson, N., Sexual Behavior and Reproductive Health Among HIV-Infected Patients in Urban and Rural South Africa. *J Acquir Immune Defic Syndr* 2008; 47: 484-493
11. Wolf, K., Young, J., Rickenbach, M., Vernazza, P., Flepp, M., Furrer, H., Bernasconi, E., Hirschel, B., Telenti, A., Weber, R. and Bucher, H.C., (Prevalence of Unsafe Sexual Behavior among HIV Infected Individuals: The Swiss HIV Cohort Study. *JAIDS* 2003, 33:494-499
12. Chander, G Perspective Addressing Alcohol Use in HIV-Infected Persons. *Alcohol Use and HIV* Volume 19 Issue 4 November 2011
13. Carol Dawson Rose, Janet Myers, Andre Maiorana, Kimberly Koester, Starley B. Shade, Stephen F. Morin (Undated poster) Predictors of Stimulant and Alcohol Use among HIV-Infected Patients in Care
14. Ehrenstein, V., Horton, N.J., Samet, J.H. Inconsistent condom use among HIV-infected patients with alcohol problems. *Drug and Alcohol Dependence*. Volume 73, Issue 2, 7 February 2004, Pages 159-166
15. WHO (2004) Gender Dimensions of HIV Status Disclosure to Sexual Partners: Rates, Barriers and Outcomes.
16. Simbayi, L.C., Kalichman, S.C., Strebel, A., Cloete, A., Henda, N. and Mqeketo, A. Disclosure of HIV status to sex partners and sexual risk behaviours among HIV-positive men and women, Cape Town, South Africa. *Sex Transm Infect* 2007;83:29-34 doi:10.1136/sti.2006.019893
17. Michael D. Stein, Kenneth A. Freedberg, Lisa M. Sullivan, Jacqueline Savetsky, Suzette M. Levenson, Ralph Hingson, and Jeffrey H. Samet Disclosure of HIV-Positive Status to Partners. *Arch Intern Med*. 1998;158:253-257.
18. Mlambo, M and Peltzer, K. HIV Sero-status Disclosure and Sexual Behaviour among HIV Positive Patients who are on Antiretroviral Treatment (ART) in Mpumalanga, South Africa. *J Hum Ecol*, 35(1): 29-41 (2011)
19. UNGASS (2009) Uganda Report
20. Venkatesan Chakrapani, Peter A. Newman, Murali Shunmugam, and Robert Dubrow Prevalence and Contexts of Inconsistent Condom Use Among Heterosexual Men and Women Living with HIV in India: Implications for Prevention. *AIDS PATIENT CARE and STDs*. Volume 24, Number 1, 2010. DOI: 10.1089=apc.2009.0214
21. Moses Bateganya, Grant Colfax, Leigh Anne Shafer, Cissy Kityo, Peter Mugenyi, David Serwadda, Harriet Mayanja, and David Bangsberg. Antiretroviral Therapy and Sexual Behavior: A Comparative Study between Antiretroviral- Naive and -Experienced Patients at an Urban HIV/AIDS Care and Research Center in Kampala, Uganda. *AIDS Patient Care and STDs*. November 2005, 19(11): 760-768. doi:10.1089/apc.2005.19.760.
22. Population Reference Bureau (PRB). 2008 World Population Data Sheet: Uganda

23. Wilson, T.M., Massad, L.S., Riestler, K.A., Barkan, S., Richardson, J., Young.M., Gurtman, A. and Greenblatt, R. Sexual, Contraceptive and Drug Use Behaviors of Women with HIV and Those at High Risk for Infection: results from the Women's Interagency HIV Study. *AIDS* 1999, 13:591-598
24. Wilson, T.E., Gore, M.E., Greenblatt, R., Cohen, M., Minkoff, H., Silver, S., Robison, E., Levine, A., and Gange, S.J., Changes in Sexual Behavior among HIV-infected Women after Initiation of HAART. *American Journal of Public Health*. July 2004, Vol 94 No.7
25. McGowan, J.P., Shah. S.S., Ganea, C.E., Blum, S., Ernst, J.A., Irwin, K.L., Noemi Olivo, N., and Weidle, P.J. Risk Behavior for Transmission of Human Immunodeficiency Virus (HIV) Among Seropositive Individuals in an Urban Setting. *Clinical infectious diseases*, 2004;38:122-7. Accessed 12 December 2011

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