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EXISTING SEXUAL RISK BEHAVIOUR AMONG PATIENTS RECEIVING ANTIRETROVIRAL TREATMENT IN UMLAZI, KWAZULU-NATAL

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Abstract

This study of HIV positive patients in Umlazi, KwaZulu Natal, receiving highly active antiretroviral therapy (HAART), focuses on the impact of HAART on respondents' reported sexual behaviour and perceptions of infectiousness while on HAART using qualitative and quantitative methods. The findings indicate relatively high levels of consistent condom use among respondents, and that they encounter certain common challenges to condom use including their partner's attitude to HIV/AIDS, communication patterns and openness in their relationships. Other factors specifically related to being HIV-positive or on HAART that influence consistent condom use are disclosure, partner communication and knowledge of partner's status. However, findings show that participants have both a good understanding of reasons for consistent condom use and a strong motivation to use them. This survey reflects a substantiated positive link between partners' disclosure and condom use, underlining the importance of positive communication patterns in respondents' relationships. Nothing in this study suggests a relationship between commencing HAART and an increase in risky sexual behaviour. Rather, the findings indicate a decrease in sexual partners and an increase in consistent condom use among respondents on HAART.

Introduction

AIDS (Acquired Immune Deficiency Syndrome) has killed more than 25 million people world wide (UNAIDS, 2006) and is the leading cause of death in South Africa. The recent rollout of highly active antiretroviral therapy (HAART) in South Africa and other developing countries has the potential to extend life, and to prevent new HIV infections (Mannheimer, Friedland, Matts et al., 2002, Bangsberg, Perry & Charlebois, 2002b, Nattrass 2004). However, the success of

HAART as a preventative measure depends in a large part on adherence to HAART and condom use.

There are only a few surveys in the developing world that aim to map out and understand the dynamics of high risk sexual behaviour after commencement of HAART. This study conducted among HAART patients in KwaZulu-Natal, the province in South Africa hardest hit by HIV, contributes to this emerging literature. It examines their reported sexual behaviour and perceptions of infectiousness while on HAART.

HAART And Sexual Behaviour: What Do We Know?

Despite the rapid scale up of HAART in many developing countries, and the funds and resources made available by the United Nations and the World Health Organization, only a limited number of studies have looked at sexual behaviour among HAART patients in developing countries.

A meta-analytic review comparing 16 studies (mostly of gay men) from industrialised countries covering high risk sexual behaviour amongst people on HAART and people who are HIV-positive but not on HAART, concluded that the prevalence of unprotected sex was not significantly higher among patients receiving HAART than those who were not receiving treatment (Crepaz, Hart & Marks, 2004). Studies from developing countries, however, indicate that patients on HAART engage in significantly less risky sexual behaviour. Recent studies from urban Uganda (Bateganya, Colfax, Shafer et al., 2005) and rural Uganda (Bunnell, Ekwaru, Solberg et al., 2006) reported an increase in consistent condom use with negative partners or partners of unknown status amongst the people enrolled in a HAART program. The rural study estimated that the risk of transmission of HIV to HIV-negative partners declined by 98% six months after initiating HAART. Research from Kenya concluded that HIV-positive people on HAART were more likely to report sexual activity than those only receiving treatment for opportunistic infections, but were also significantly more likely to use a condom (Sarna, Luchters, Kaai, et al., 2005). A study conducted in Cote d` Ivoire also found that the patients on HAART had lower risk behaviour than those who were not on HAART (Moatti, Prudhomme, Traore et al., 2001).

As HAART patients feel increasingly healthy, and their hopes for the future are boosted, the desire to have children might arise. This is especially relevant in sub-Saharan Africa where fertility and children play an important role both culturally, economically and socially (Tillitson & Maharaj, 2001, Preston-Whyte & Zondi, 1999). Thus the desire to have children may act as a barrier to condom use among the HAART patients. A Rwandan study found that HIV positive women who had fewer than four children were more likely to become pregnant than those who had four or more children (Allen, Serufilira, Gruber et al., 1993). This could indicate that the desire to have children is an obstacle to condom use among HIV-positive women in developing countries. However, more research needs to be conducted to establish this.

Condom use by HAART patients may well be affected by perceptions of infectiousness. As HAART reduces the viral load (and hence infectivity) there has been some concern that HAART patients will believe that it is less important to use condoms (Marseille et al., 2002). But while there is some evidence that a minority of gay men manifest 'treatment optimism' and are therefore more likely to practice unsafe sex, the numbers are low (Stolte, Duker, de Vit, et al., 2002, Elford, 2004, Perez, Rhodes & Casabona, 2002). Few homosexuals see treatment as a reason to relax their sexual preventative measures (see: Vanable, Ostrow, McKirnan, Taywaditep & Hope, 2000, Van de Ven, Kippax, Knox et al., Elford, Bolding, Maguire & Sherr, 2000, Cox, Beauchemin & Allard, 2004). While these studies are suggestive, one must question whether the information gathered is transferable to African countries where the socio-economic context is very different and where most people undergoing treatment are heterosexual, and predominantly women (Caldwell, 2000).

Studies conducted among HIV-positive people both in developed and developing countries indicate that disclosure to partner, and knowing your partner's status, influence condom use (Allen et al., 1993, Deschamps, Pape, Hafner & Johnson, 1996, Allen, Meinzen-Derr, Kautzman et al., 2003, The Voluntary HIV-1 Counselling and Testing Efficacy Study Group, 2000, Marks, Richardson & Maldonado, 1991, Sheon & Crosby, 2004). In the US having an HIV-positive partner reduced the chances of couples using condoms (Sheon & Crosby, 2004). One of the few qualitative studies focusing on VCT and risky sexual behaviour argues that HIV-positive people encounter the same barriers to condom use as other people who are not positive, which are gender inequality, denial, and the desire for children. In addition, stigma and prejudice make negotiating safer sex particularly difficult (Meuersing, 1999).

The long term effect disclosure and VCT have on decreasing risky sexual behaviour is uncertain (Temmerman, Moses, Kiragu et al., 1990, Krabbendam, Kuijper, Wolffers & Drew, 1998). A study in Kampala, Uganda, showed that those who had undergone VCT had the same behaviour after one year as compared to those who had not been tested (Muller, Barugahare, Schwartlander et al., 1992). A study done in Gambia had similar findings (Wilkins, Alonso, Baldeh et al., 1990). However, it is too simplistic to argue that these findings amongst HIV-positive people who are not on HAART apply to HAART patients. Most people on HAART have been sick due to AIDS, they have known about their HIV-positive status for longer and they have gone through more HIV/AIDS and ART (Antiretroviral Therapy) related training. Their behaviour is thus likely to be very different.

The Study

This study comprised a qualitative study of 20 HAART patients using a semi-structured interview design followed by a quantitative analysis of 271 HAART patients in KwaZulu-Natal, which is the Zulu-speaking region hardest hit by HIV in South Africa (Doherty & Colvin, 2004). Respondents were recruited from a clinic in Umlazi (a township outside Durban) which at the time of the study (2004/5) had about 500 HAART patients. The criteria for inclusion in the study was that respondents had to be over 18 years of age, have been on HAART for at least two months, and have had a sexual partner after discovering their HIV status.

HIV/AIDS and sexual behaviour are sensitive issues, and it is important to bear in mind that respondents might not be telling the truth when answering questions on this topic (see: Catania, Gibson, Chitwood & Coates, 1990, Catania, Binson, van der Straten, & Stone, 1995, Catania, Binson, Canchola & Pollack, 1996). The participants know that they are HIV-positive and they probably also know that having unprotected sex is risky for their partners and themselves. The danger of getting socially desirable answers is therefore even greater in this study than in sexual behaviour research where the participants do not know their status (Weinhardt, Forsyth, Carey et al., 1998).

Narratives From The Semi Structured Interviews

The initial qualitative study was conducted to inform the design of the quantitative survey. However, the narratives provided a useful context for the data analysis. Some of these are summarised below. All names are pseudonyms.

Robert's story:

Robert, a 39 year old man, started boxing in 1991. In 1998 he went for a blood test as part of an application for a professional boxer's licence. The boxing committee did not give the results to him, but called his mother and told her over the telephone. He subsequently attended several VCT sessions and became a member of a support group for HIV-positive people. He says that he has learned that it was wrong of the boxing committee to give him his result this way.

One of Robert's sexual partners (who had left him for another man before he learned of his HIV status) has already died. He uses this fact to try and persuade women to use condoms with him. However, he reported that this was often a problem and that women subsequently left him because of his use of condoms.

> *'It has to do with that sex is about satisfaction. If you are in a relationship and you keep on wearing a condom you are boring them. The person you are in love with does not want to hear about it (…) the problem is the condom. (…) They say they don't feel comfortable with it and I have to tell straight that I have this disease.'*

Robert also complained about the way that condoms interfere with his sexual performance.

> *'Eih, once I used condoms I had a low erection so my penis did not reach to a certain place of her private part where she feels most pleasure. In other words I was useless to her. She did not feel pleasure. Number 6 did not like condoms and number 7 did not feel pleasure, which means I had the same problems one after the other.'*

The former boxer is now training to be a pastor and has therefore chosen to abstain from sex, but he has not stopped looking for a person that he can marry. He has decided to marry an HIV-positive woman because he wants someone

who will understand the importance of using condoms and also accept his HIV status. He explains that he has approached some ladies at the clinic that he knows are HIV-positive, but he is still in the process of proposing to them. 'My faith tells me that I have to pay lobola (bride price) before I get a sleeping partner. Now that I am training to be a pastor I feel I owe my congregation to follow this rule'.

Robert is currently staying with his mother, his brother and his three children. He has not told two of his children about his status, but he takes his HAART pills in front of them and they have said to him that he is taking pills for HIV-positive people. Robert explains that it is important to tell the people you are staying with that you are positive as they can help you when you get sick. It is also important that they are careful when they help you so they don't contract your illness.

Sipho's story:

Sipho, a 41 year old man, has two children, who are 7 and 14 years old (neither of whom are HIV-positive). Although he says he is less sexually active since starting HAART, he has two sexual partners one of whom knows she is HIV-positive, and the other (his long-term partner) who assumes she is. He is currently staying by himself and his partners come to visit.

Sipho is not worried about stigma. He says that he has the will power to get better. Both of his partners know about his status. He also told his family four months after he tested. His regular sexual partner was the first person to get to know about his status. The other partner got to know later when she came to him seeking advice about her own status. He does not use condoms consistently even though he knows he should:

> *'It is because they want us not to infect other people and to avoid re-infection, if you sleep with someone who is HIV-positive. Even though you are on treatment you can re-infect yourself and your partner, and that can cause the CD 4 count to drop.'*

Fikile's story:

Fikile, a 26 year old woman, has a 26 month old daughter who is HIV negative and a sexual partner whose HIV status is unknown. She got to know her status when she was pregnant in 2001. Fikile has disclosed to everyone except the people who go to her church. She disclosed to her older sister first, and to a friend that helps her financially. It did however take her more than two years before she told her mother. Instead of disclosing she told her mother the drugs were for the baby.

In the beginning she also had problems telling her partner about her status, but in the end he joined her in the support group. '…He knows a lot of stuff about HIV. I don't have to explain to him'. However, it was not an easy process as he initially left her soon after she found out that she was HIV-positive. She had not disclosed to him, but he suspected nevertheless. After they got back together again, he kept asking her about her status, but she was not prepared to tell him: 'Every time I got back from the clinic he asked about my results. I was afraid of telling him. I think he was suspicious'. Because of this failure to disclose she was unable to negotiate condom usage. In the end it was the clinic that indirectly made Fikile disclose.

> *'I was afraid that the clinic would know that I was up to something bad (…) The sister would look at me and say "Do you still use a condom," and I would say "Yes," and she said "Are you sure?" and I said "Yes," while I knew that I was lying. They always ask us if we still use a condom. A doctor drew a chart about the people in Johannesburg explaining that they are in group A, and that they do not carry the same virus as us. It depends on where you come from. I thought the doctor was right; my boyfriend had a job in Johannesburg.'*

It took Fikile a year to disclose to her partner. She says that going on HAART influenced her condom use because she learned that an HIV infection could be deadly for him, as he would not be able to use the same drugs that she did when he needed them.

Before she found out her status Fikile had multiple partners, and she had more sex than she has now. She says that she is scared she is going to die now, and that makes her nervous. She also says that the baby keeps her busy, and she feels more grown up. She admits that it happens that people have multiple partners because the partner can give you money or buy you new clothes.

Thandiswa's story:

Thandiswa, a 38 year old woman, is married and has one 16 year old child with her HIV-positive husband. They are all staying together. She discovered her status after she was ill and had to go to hospital in March 2003. When she went for VCT they found her CD4 count to be 62. She started her antiretroviral treatment eight months later, in December. Her husband is also on HAART and they attended training together.
Thandiswa's husband was present when she got her result, so she told him straight away. 'We communicate well, and we talk about everything. He comforted me and told me that I'm going to be OK'. The husband went for a test two months after Thandiswa, and found out he was also positive. They have however not told their child about their status. 'I was afraid that she will have problems…I think it will affect her at school'. She has not told her parents about their status either. Her parents are old and two members of her family died of AIDS last year. She does not want the family to go through such pain again. Despite this she feels free, and has no problem coming to the clinic, which is a place where only HIV-positive people go. 'I don't care. My life is so important' she says. Thandiswa and her husband abstained from sex from March 2003 to February 2004, because they did not want to start using a condom while they were sick. However, when they started having sex again they did not find it difficult to use condoms after attending training together.

Dumsile's story:

Dumsile, a 29 year old woman, went for her first test in 1997 but was too scared to pick up her result. She did the test a year later, went back for the result and discovered that she was HIV-positive. She told her mother the same day, but decided not to disclose to her sister because her sister is an alcoholic and Dumsile feared she would talk about it at the shebeen (informal pub). Other family members know about her status and have given her a lot of support, including giving her money so that she can go to the hospital.

Dumsile's current boyfriend says he loves her even though she has got HIV. However it took a long time before he believed her when she said she was positive. In the end she brought a copy of her test result to him, which finally convinced him. He has shingles and is in great pain, but does not want to go for a test. The same happened to Dumsile's former boyfriend. He did not want to go for a test either, even though it was evident that he had HIV. 'He congratulated

me, and said where did you get it?' Dumsile is using condoms with her current boyfriend, but she was not using them with her ex-boyfriend. 'It is not easy to talk about condoms, partners are very rude if you suggest using them'.

Findings From The Quantitative Survey

Table 1 summarises the key socio-demographic characteristics of the survey of 271 HAART patients who had been on treatment for at least 2 months, who were over 18 years of age and who had had a sexual partner since starting HAART. One of the most striking results is that men comprised only 19.9% of the sample. This reflects the fact that less than 30% of HAART patients in the clinic were men (Clinic records, 2005) and that male patients were twice as likely to be working (and thus less likely to be available for interviews).

Table 1: Description of respondents' socio-demographic characteristics

Variable	**Female %**	**Male %**	**Total %**
Age (years)			
Less than 35	54.6	37.0	51.1
Living situation			
Married	12.4	24.1	14.8
Living together	10.1	18.5	11.8
Neither	77.4	57.4	73.4
Highest level of schooling obtained			
Did not pass a grade	0.9	1.9	1.1
Primary/lower secondary	24.6	32.1	26.1
Upper secondary	63.4	54.7	61.7
Higher education	11.1	11.3	11.2
Employment status			
Unemployed	83.9	63.0	79.7
N	**216**	**55**	**271**

At the time the survey was conducted the participants reported having known their status for an average of three years and two months. The females had on average known about their status for ten months longer than the males. The respondents had, on average, been on HAART for 14 months, and their time on treatment ranged from 2 to 57 months. This is a relatively short time considering that HAART is a lifelong commitment. However, it does reflect that HAART had only been provided by the clinic (operated by an NGO) since 2001.

One of the aims of this study was to describe the participants' perceptions of their own infectiousness. As noted earlier, HIV-positive people on HAART become less infectious if they take their HAART correctly, and there is some concern that this knowledge might be an obstacle to condom use (e.g. Marseille et al., 2002).

The participants in the semi-structured interviews expressed anxiety about transmitting the virus to their existing or potential partners. When asked about how likely they were to transmit the virus to their partner, all of them expressed that they must use a condom because if they didn't their partner would get HIV. Several also expressed that it was even more dangerous not to use a condom now compared to when they were not on HAART.

> *'It is the same as when you are not using them (ART). You are re-infecting, you are re-infecting. We are taking different drugs and they are in our bodies. If we sleep together without a condom it might happen that the treatment will not be effective.'*
>
> Robert, 39

Like Robert, several other participants pointed out the possibility that re-infecting or infecting one's partner could result in the partner not being able to utilize the same drugs as them if they needed to start taking HAART:

> *'It's possible because he's not on medication and if you are not practising safe sex. My virus knows the drug I'm taking while his doesn't.'*
>
> Thembisa, 40

The results from the survey indicate that most respondents know what CD4 count means, but substantially fewer understand the concept of viral load (53.1%). How the patients understand the concept of viral load could have an impact on how they perceive their own infectiousness, as the viral load measures

how much virus exists in the blood. However, none of the participants in the qualitative interviews make the connection between decreasing viral load and lower levels of infectiousness. None of them mentioned the fact that they were less infectious after starting HAART.

The respondents in the survey were asked three different questions in order to determine how they perceived their infectiousness *before* and *after* starting HAART. Table 2 indicates that the respondents considered it dangerous to sleep with someone without a condom, irrespective of them being on HAART or not. However, one third of the participants thought it was very dangerous to sleep with someone without a condom *before* they started HAART, while three times as many thought it was very dangerous to do the same *after* starting HAART. This perception is underlined by the answers given to the question 'are you more or less likely to transmit the virus to your partner now that you are on ARV compared to when you were *not* on ARV?' Out of all the respondents 90 percent said they were more likely to transmit the virus now. The results displayed in Table 2 indicate that the respondents did not look at themselves as less infectious after commencing HAART, rather the opposite.

Table 2: Responses in percentages to statements related to perception of infectiousness.

Statements	**Respondents %**
How dangerous do you think it was for you to sleep with someone without a condom *after* you started ARV treatment?	
Very dangerous	91.5*
Dangerous	7.4
How dangerous do you think it was for you to sleep with someone without a condom *before* you started ARV treatment?	
Very dangerous	29.2*
Dangerous	62.4
Are you more or less likely to transmit the virus to your partner now that you are on ARV compared to when you were *not* on ARV?	
More likely	90.4
Less likely	4.1
Same likelihood	5.3
N	**271**

Note: Percentage of those answering somewhat/little/not dangerous not displayed.

Very few of the respondents (3.3%) reported having multiple partners after starting HAART and no significant association was found between condom use and currently having two or more partners (df=2, *P*=0.117). However, as interviews took place in the clinic where the HAART patients had been advised to have only one partner, it is possible that this may have biased the results in a downward direction.

72.7% of respondents reported using condoms consistently with the last person they had sex with (partner 1). The number of people using condoms consistently with the second last partner they had sex with is only slightly lower (68.4%). Half as many females in the general population used condoms at last sexual intercourse (South African Department of Health, 2006). Commencing ART or going for VCT could in this study therefore be predictors of consistent condom use, as other studies have indicated (Sarna et al., 2005, Moatti et al., 2001, Bateganya et al., 2005, Bunnell et al., 2006). The level of condom use in the present study is consistent with other studies of HAART patients (Bunnell et al., 2006, Sarna et al., 2005, Moatti et al., 2003).

Table 3: Respondents using condoms consistently by sexual partner

Variable	**Partner 1***		**Partner 2****		**Partner 3*****	
	N	%	N	%	N	%
Always	197	72.7	13	68.4	2	66.6
Sometimes	60	22.1	4	21.1		
Never	14	5.2	2	0.5	1	33.3
Total	**271**	**100.0**	**20**	**100.0**	**3**	**100.0**

* Most recent sexual partner had after commencing ART ** Second most recent sexual partner had after commencing ART *** Third most recent sexual partner had after commencing ART

The most common reason for not using condoms regularly with the last sexual partner was ‘s/he did not want to use them’ (66.2%). Other important reasons were ‘condoms reduce pleasure’ and ‘it was difficult for us to discuss it’.

Studies have indicated that it is difficult to sustain consistent condom use with the same partner over a period of time (Maculoso, Deman, Artz & Hook, 2000, Padian, Hitchcock, Fullilove et al., 1990). There was only one participant that pointed out this obstacle in the interviews. Joyce was one of the few participants that met her partner after VCT. Her partner sometimes refuses to use a condom

even though she has disclosed her status to him. She then has to be insistent. Her partner has not yet gone for a test, but she is encouraging him to do so.

Disclosure, Status Of Partner, And Condom Use

Several studies in developing countries have found a significant association between condom use and the couples' communication about their status (Kamenga, Ryder, Jingu et al., 1991, Allen et al., 2003, The Voluntary HIV-1 Counselling and Testing Efficacy Study Group, 2000, Crepaz & Marks, 2003). The disclosure of status by one or both partners is thought to create increased openness in the relationship, which can facilitate successful negotiation of condom use. Studies have found disclosure rates to last sexual partner or regular partner to be between 28 and 86 percent (Medley, Garcia-Moreno, McGill & Maman, 2004, Sempe, Mtshizana, Ramashiga et al., 2004, Antelman, Faawzi, Kaaya et al., 2001). It is therefore important to look closely at disclosure within the relationship and the status of participants and respondent's partner in relation to condom use.

There were quite distinct differences in the semi-structured interviews between participants who have positive partners who were on HAART, and those who did not know the status of their partners. The use of condoms was much easier when the partner had undergone the same training as the participant, and they both understood why it was important to use condoms.

For most of the participants it took some time before they managed to disclose to their partner, and still others had to tell their partners several times and show written proof before the partner believed them. Thabile's partner does not stay with her, as he is working up in the northern part of KwaZulu-Natal. She only managed to tell him after she had started HAART.

> *'If you are not open with a person, you start with cracking some jokes about it to see his reaction. He was home for the weekend, and I was feeling guilty. I decided to tell him the following week. He thought I was just joking, I showed him the results as a proof.'*
>
> Thabile, 29

Thabile and her partner started using condoms after she told him about her status. Her partner is often sick, and he recently went for an HIV-test that came back positive. She fears she might have been the one infecting him, and that makes her feel guilty. This participant was, like many others, scared that the partner would leave her when she disclosed.

> *'I was scared that he was going to leave me. I love him. But I was also thinking about my life, that we have to be careful and help each other.'*
>
> Thabile, 29

Fikile had a similar reason for not disclosing her status to her partner. She found out about her status while she was pregnant. The relationship to the child's father was not stable. When he got to know she was pregnant he ran away and came back after a couple of months. All through the pregnancy she told her partner that they needed to use condoms to protect the baby against different viruses, but after the baby was born her excuse turned invalid. The partner also became suspicious because she did not breastfeed the baby.

> *'He asked me why I didn't breastfeed. I said "They said I shouldn't." I was afraid of telling him, I always postponed it. I ended up telling him that I'm not breastfeeding because I'm HIV positive and I'm taking antiretroviral drugs.'*
>
> Fikile, 26

Fikile's partner reacted negatively to her disclosure. However, he did not leave her like she feared he would. Instead, his attitude started changing after his initial anger subsided and he started accompanying her to the clinic. At the time of the interview he was considering going for VCT.

Dumsile points out another reason why she feels it is important to disclose. She does not have any children, and she thinks that someone might propose marriage or love to her because they want to have children. She says that it is therefore important to be open about your status before you go into the relationship.

> *'Some men fall in love with a partner simply because he wants children or because he wants to establish a family, so it is good I tell him I am positive. If you are just telling him that we need to use a condom he will not understand. The best thing is to tell him about your status and he will*

start to forget about having children and he must not think about having sex without a condom.'

Dumsile, 29

Lyonda was the only participant who had not disclosed to her partner, but still managed to use condoms consistently. She met her partner in 2002, after she found out about her status. She was not feeling very well when she met him, and she uses her illness as a reason for why they have to use condoms.

'I know for sure that I'm HIV positive and I wish to tell him, but I don't know how. (…) I tell him that I'm still sick. I'm not alright to have sex without a condom.'

Lyonda, 32

When giving reasons for why they had not disclosed to their most recent sexual partner (since starting HAART) 66.6 percent of the respondents said they were afraid that their partner would leave them and 58% said that they were afraid that the partner would disclose their status to others. This study has therefore, like many other studies, found that fear of stigmatisation and loss of partner's support and love are the major obstacles to disclosure (Maman, Mbwambo, Hogan et al., 2001, Medley et al., 2004). However, this study indicates that few partners actually leave the respondents after disclosure. More than 90 percent (N=165) of those who started going out with their partner before VCT were still with this partner at the time of the interview, despite high rates of disclosure. According to Robert (39), this is probably because so many people believe they are also HIV-positive (even if they have not tested):

'(…) a lot of people leave you if you tell them about your condition especially if they believe they are negative, but those who believe they are positive stay.'

Previous experiences in the participants' lives can create strong pull factors for consistent condom use. Nkosi got to know his status in 1994. It took him five years to disclose to his family, and he never disclosed to his former partner. This resulted in them not using condoms when they had sex. She died in 1999 from an AIDS related disease. Nkosi thinks he infected her, and feels guilty. He did not have a girlfriend for four years after his partner's death, and when he started having sex again he made sure that he disclosed to his partners. Nkosi says he disclosed to his current girlfriend because he knew that one day she would ask why they were using condoms.

Factors Associated With Condom Use

Bivariate analysis was conducted to explore potential socio-economic and demographic determinants of condom use with the most recent sexual partner. Neither age nor gender is significant. However, some degree of economic independence appears to be important for consistent condom use. Respondents who were employed were more likely to use condoms consistently than those who were unemployed.

Both the qualitative findings described above and Table 4 below indicate that there is a relationship between condom use and the nature of communication about condom use in the relationship. Having had disagreements or arguments about condom use is significantly associated with condom use with the most recent partner. A significant linear association is also detected between this question and condom use. Out of those having had discussions or arguments about condoms 29.4 percent used condoms consistently, while 70.6 percent of those who have not had these disagreements use them consistently. However, it is not possible to determine causality. One cannot know whether condom use predicts the discussion, or whether the discussion about condoms predicts the condom use. The association should therefore be interpreted with caution. 'If I asked my sexual partner to use a condom s/he would be angry' is similar to the statement 'Have had discussions or arguments about condom use'. However, the former statement measures something slightly different, as it implies that asking the partner to use condoms will lead to anger. Causality is built into the statement. There is a significant association between condom use and the statement 'If I asked my sexual partner to use a condom s/he would be angry'. Of those who agree with the statement, 36.6 percent use condoms consistently, while amongst those who disagree 63.4 percent do the same. One could therefore assume that the partner's negative attitude to condoms is a predictor of inconsistent or non-use of condoms.

This study also found higher rates of consistent condom use amongst couples who made the decision to use this form of protection together, than amongst respondents who made the decision on their own (see Table 4). Close to 60 percent of the respondents who made the decision to use condoms together with their partner used them consistently, as opposed to the 40 percent who made the decision on their own. Other studies have found the same amongst people in the general population and in relationships where one of the partners had gone for VCT (Solomon, Rooyen, Griesel et al., 2004). This underlines that using condoms requires the cooperation of both partners.

Table 4: Respondents who use condoms consistently with last sexual partner, by specific statements related to communication about condom use and selected background characteristics.

Statement	**Respondents**	
	%	**N**
Sex		
Females	70.5	153
Males	81.5	44
Age		
Less than 35	76.8	106
35 and above	68.9	91
Marital status		
Married/living together	77.8	56
Neither	70.9	141
Current employment status:		
Employed	89.1	49**
Unemployed	68.5	148
Discussions/arguments about condom use with most recent partner		
Yes	29.4	58**
No	70.6	139
If I asked my sexual partner to use a condom s/he would be angry.		
Agree	36.6	68**
Disagree	63.4	118
Your partner will suspect you being positive if you insist on using Condoms		
Agree	77.8	144
Disagree	22.2	41
Current desire for more children with partner		
Yes	76.5	62
No	71.3	134
Disclosed to most recent partner		
Yes	74.9	167
No	62.5	30
Knowledge of status of most recent partner		
Yes	78.2	115***
No	65.5	74
Status of most recent partner		
Positive	74.5	79
Negative	85.4	35
Duration of relationship		
Before VCT	64.3	108**
After VCT	90.3	28
After ART	84.0	63

* Significant at 0.05 **Significant at 0.01 ***Significant linear trend at 0.05

The qualitative findings suggest that participants found it difficult to maintain consistent condom use when they had not disclosed. In the quantitative analysis, no association was found between respondents' disclosure and condom use. However, a significant association was found between condom use and knowledge of the status of their most recent sexual partner. There was also a significant relationship between disclosure to their most recent partner and knowing this partner's status. Only 9.8 percent of those who knew their most recent sexual partner's status had not disclosed to him or her. Open and positive communication about HIV/AIDS seems to be an indirect predictor of consistent condom use as it facilitates disclosure in the relationship. These findings underline the importance of the partner's positive attitude to HIV and cooperation in relation to condom use.

It is worth stressing the problem of causality: one cannot establish whether condom use predicts disclosure or whether disclosure predicts condom use. Most studies assume that disclosure predicts condom use, but the responses to the statement 'Your partner will suspect you being HIV-positive if you insist on using condoms' should evoke caution on this note. Out of all the respondents 71.6 percent said that insisting on condom use would make their partner suspect them of being HIV positive. Using this statement one could argue that the use of condoms facilitates disclosure.

Studies conducted in the United States found that discordant couples were more likely to use condoms consistently than concordant couples (Marks et al., 1991, Sheon & Crosby, 2004, Simoni & Pantalone, 2004, Sturdevant, Belzer, Weissman et al., 2001). This survey does not indicate this as larger proportions of concordant than discordant couples used condoms in their sexual encounters. It is however important to keep in mind that relatively few participants in the survey knew their partner's status. The reason for this might be found in the HAART adherence training, where the patients at the clinic are told about re-infections and drug resistance that can occur even among concordant couples. The qualitative findings also indicate that the respondents who are in a concordant relationship know about the dangers of having sex without a condom, and that it can jeopardize their health. The respondents with partners on HAART seem to be especially comfortable with using condoms, since both of them have gone through the same training. On the other hand, it is important to note that only 114 respondents knew the status of their partners, and significance might have been reached if the number of respondents were higher.

The participants in the qualitative interviews who had been with their partner for a long time emphasized that it was difficult to introduce consistent condom use into a relationship where condoms had not been used before. Those who had started their relationship after VCT or after they commenced HAART found it easier as they told their partner that using condoms was a condition for having sexual intercourse. Results from the survey indicate that 64.5 percent of those who started going out with their last sexual partner before VCT use condoms consistently, while 90.3 percent of those who started going out with their last sexual partner after VCT did the same. There is a significant association between when respondents started going out with their sexual partners and condom use.

Table 5 indicates that the significance levels of the variables do not change much when transferred into a multiple logistic regression model. Age became significant (df=1, P=0.35) in the model. The strongest relationship is found between condom use and when people started to go out with their partners. The respondents who started going out with their partners after VCT were 3.7 times more likely to use condoms consistently with their partner than those who started going out with their partner before VCT. Those who did not know the status of their most recent partner were only half as likely to use condoms consistently as those who did know their last partner's status. Although the relationship between employment and condom use became slightly weaker, employment continued to play a role. Those respondents who were unemployed were almost sixty percent less likely to use condoms consistently with their last partner than those who were employed. Those above the age of 35 are 30 percent less likely to use condoms consistently than those under the age of 35. This could be related to the fact that 90 percent of those who are 35 years or older started their relationship before going for VCT, while 74 percent of those under the age of 35 did the same.

Table 5: Multiple logistic regressions of respondents using condoms consistently by selected independent variables

	Odds Ratios
Age	
Under 35	1
Above 35	0.50*
Living situation	
Married/living together	1
Neither	0.68
Sex	
Female	1
Male	1.43
Employment	
Employed	1
Unemployed	0.36*
Know first partners' status	
Yes	1
No	0.47*
Start of relationship with first partner	
Before VCT	1
After VCT/ART	3.85**

* Statistically significant at 0.05 level ** Statistically significant at 0.01 level

Discussion

This study found relatively high levels of consistent condom use among people on HAART in Umlazi, South Africa. More than 70 percent of the respondents used condoms consistently with their last or current sexual partner. This level of condom use is consistent with findings from similar studies (Sarna et al., 2005 Bateganya et al., 2005, Bunnell et al., 2006). The level of condom use is higher than what is found in the general South African population (South African Department of Health, 2006). The sample population meets many of the same challenges as people who do not know their status when wanting to negotiate condom use. Partner's attitude to HIV/AIDS, communication patterns and openness in the relationship all play major roles.

There were also other factors specifically related to being HIV-positive or on HAART that influenced condom use. Disclosure, and especially knowledge of partner's status, were found to be important to consistent condom use. At what stage the sample population entered the relationship was also a predictor of condom use. Strong associations were found between condom use and statements related to partner communication, such as 'discussions/arguments about condom use with most recent partner'.

Causality in relation to disclosure and several communication statements can not be made due to the methods used in the study. It is therefore not possible to determine whether it was use of condoms that caused arguments or arguments that caused inconsistent use of condoms. Similarly, it is difficult to determine whether condom use led to disclosure of status, or whether disclosure of status led to the use of condoms.

The findings from the qualitative data in the study suggest a sound knowledge of condoms, and a strong motivation among participants to use them. The respondents display good insight into the reasons why it is important to use condoms consistently. They state that they will get sicker, and that the virus will be allowed to increase if they do not use condoms. Others point out that they must protect their partners.

The reasons most frequently mentioned for not using condoms consistently are objections from partner, reduction of pleasure and difficulty in discussing the use of condoms with a partner. Many of the respondents who had been with their partner for a long time were worried about their partner's reaction. Those who had a positive partner or who had insisted on condom use when they entered the relationship were less concerned.

Most of the participants in the semi-structured interviews who knew their partner's status did not have to negotiate condom use. Participants with partners who were on HAART appeared to meet the least obstacles to consistent condom use. In these relationships the couples had gone through the same training and both understood why they had to use protection. In fact, some participants who did not have a partner were looking for an HIV-positive partner, preferably someone on ART, because of this common understanding.

Most participants felt that they had to disclose so they could justify using a condom. Several of the participants had tried to use condoms without disclosing, but ended up having to tell their partner because they could not sustain

consistent use. The survey indicates that it is not the respondents' disclosure of status to their partner that appears to be most important to consistent condom use, but rather the respondent's knowledge of their partner's status. Respondents who knew the status of their last sexual partner were almost 65 percent more likely to use condoms consistently than those who did not. No significant difference in consistent condom use was found between those who had a positive partner and those who had a negative partner in this study.

The positive effect of partners' disclosure underlines the importance of positive communication patterns in the respondents' relationships. The significant association between communication related statements and condom use substantiates this. Agreement with negative statements about condom use were associated with inconsistent condom use. Also those respondents who were in a relationship where both partners had agreed on condom use were more likely to use condoms consistently. These findings further explain that it is not only a verbalised version of the partners' objection that plays an important role in relation to consistent condom use, but also the respondent's perceived attitude to both HIV/AIDS and condom use in general.

One should not always assume that it is the HAART patient's partner that objects to condom use. In some instances it could also be the person on HAART. One of the male participants not using condoms in the semi-structured interviews indicated that he loses his erection when using a condom and therefore chose not to use it. Another participant said he and his partners had agreed on not using condoms because they were all HIV-positive.

At what time the relationship to their last sexual partner started was closely linked to condom use. Those who started going out with their partner after VCT or ART were 3.7 times more likely to use condoms consistently than those who started going out with their partner before VCT. Respondents who started going out with their partners after VCT told their new partners that they had to use condoms, and many disclosed, before entering into a sexual relationship as they assumed these issues would come up anyway. This is underlined by the fact that respondents 35 years and older were 45 percent less likely to use condoms consistently compared to those under the age of 35.

Many females do not want to disclose because they are scared their partner will leave them as their partner is their main source of economic support (Maman et al., 2001, Medley et al., 2004). The respondents who were employed were 70 percent more likely to use condoms consistently than those who were

unemployed. This suggests that access to financial resources plays a role when wanting to insist on consistent use of condoms.

Some researchers have suggested that the introduction of HAART can lead to a relaxation in protective measures after the commencement of treatment (Marseille et al., 2002). Both qualitative and the quantitative data suggest that the respondents do not perceive themselves to be less infectious after having started HAART. In the survey more than 90 percent of respondents answered that they were more likely to transmit the virus after having commenced ART than before. The qualitative analysis indicates the same.

Nothing in this study suggests that there is a relationship between commencing HAART and an increase in risky sexual behaviour. Rather, the study suggests the opposite with a decrease in sexual partners and an increase in consistent condom use. Both quantitative and qualitative findings suggest that the respondents think it is just as necessary, or even more necessary, to use condoms after having commenced HAART. However, it is important to point out that HAART is a life-long commitment and the sample population is relatively 'young'. It is therefore possible that their perception might change with time, as their health status further improves.

This study focuses on ART patients who have had sexual intercourse after commencing ART. It therefore excludes patients who decided to abstain before commencing therapy. The number of participants who did not have a current sexual partner was therefore low (4.1 %). Other studies which included respondents who had not had sexual intercourse after commencing treatment have found that substantial numbers of ART patients are abstaining (Sarna et al., 2005, Bunnell et al., 2006, Bateganya et al., 2005). More research, especially using qualitative methods, is needed to determine the functions and motivations for abstinence among patients on HAART.

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