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Article *in* AIDS and Behavior · May 2009

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Published in final edited form as:
AIDS Behav. 2009 June ; 13(Suppl 1): 72–81. doi:10.1007/s10461-009-9553-y.

The WHOMEN's Scale (Women's HAART Optimism Monitoring and EvaluatioN Scale v.1) and the Association with Fertility Intentions and Sexual Behaviours Among HIV-Positive Women in Uganda

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Abstract

The objective of this study was to develop a reliable HAART optimism scale among HIV-positive women in Uganda and to test the scale's validity against measures of fertility intentions, sexual activity, and unprotected sexual intercourse. We used cross-sectional survey data of 540 women (18–50 years) attending Mbarara University's HIV clinic in Uganda. Women were asked how much they agreed or disagreed with 23 statements about HAART. Data were subjected to a principal components and factor analyses. Subsequently, we tested the association between the scale and fertility intentions and sexual behaviour using Wilcoxon rank sum test. Factor analysis yielded three factors, one of which was an eight-item HAART optimism scale with moderately high internal consistency (α = 0.70). Women who reported that they intended to have (more) children had significantly higher HAART optimism scores (median = 13.5 [IQR: 12–16]) than

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women who did not intend to have (more) children (median = 10.5 [IQR: 8–12]; P <0.0001). Similarly, women who were sexually active and who reported practicing unprotected sexual intercourse had significantly higher HAART optimism scores than women who were sexually abstinent or who practiced protected sexual intercourse. Our reliable and valid scale, termed the *Women's HAART Optimism Monitoring and EvaluatioN scale* (WHOMEN's scale), may be valuable to broader studies investigating the role of HAART optimism on reproductive intentions and sexual behaviours of HIV-positive women in high HIV prevalence settings.

Keywords

HIV; HAART; Uganda; Scale; HAART optimism; Women; Fertility intentions; Sexual behaviour; HAART optimism scale

Introduction

The introduction of highly active antiretroviral therapy (HAART) in 1996 heralded a new era of hope for people living with HIV/AIDS. Since then, a growing body of evidence has revealed that by suppressing HIV viral load, HAART has dramatically increased survival and decreased HIV/AIDS-related morbidity of individuals in both resource-rich (Hogg et al. 1998; Mocroft et al. 1998; Palella et al. 1998) and resource-limited settings (Seyler et al. 2003; Braitstein et al. 2006; Spacek et al. 2006; Wools-Kaloustian et al. 2006).

Alongside the remarkable clinical benefits, early reports speculated that the availability of HAART would influence perceptions of HIV risk and sexual risk behaviour of both HIV-infected and uninfected individuals, thereby creating a potential for increased transmission of HIV and other sexually transmitted infections (Dilley et al. 1997; Kelly et al. 1998). These perceptions, termed variably as 'HA-ART optimism' or 'HIV treatment optimism', reflected individuals' optimism about the use and efficacy of HA-ART and corresponding beliefs concerning the decreased need to engage in safer sexual behaviours (International Collaboration on HIV Optimism 2003). These beliefs include two different but related aspects; namely, a belief that HIV-infected individuals on HAART are less likely to transmit HIV due to reduced viral loads and a belief that HIV infection is less of a threat to health and survival due to HAART availability (Remien and Smith 2000; Elford et al. 2002).

The concept of HAART optimism is important to HIV prevention efforts since higher levels have commonly been associated with lower rates of condom use, primarily among men who have sex with men (MSM) (Kalichman et al. 1998; Kravcik et al. 1998; Van de Ven et al. 1999; Vanable et al. 2000; Ostrow et al. 2002; Van de Ven et al. 2002). While the association has not been entirely consistent (Elford et al. 2000), a meta-analysis reported that individuals with high levels of HAART optimism are significantly more likely to engage in unprotected sexual behavior, irrespective of their HIV status and actual HA-ART use status (Crepaz et al. 2004). Based on the cross-sectional nature of these studies, however, we cannot conclude that HAART optimism is the causal factor for the risk, and not vice versa as shown elsewhere (Huebner et al. 2004).

An important limitation of the published literature on HAART optimism to date is its near exclusive focus on sexual risk behavior among MSM populations in western country settings. No studies are available regarding the role of HAART optimism in HIV endemic countries, owing in part to the recency of widespread HAART availability in these settings (WHO 2008). Limited findings are available concerning the prevalence and role of HAART optimism among women (van der Straten et al. 2000; Kerrigan et al. 2006), despite the fact that women comprise half of all people living with HIV/AIDS around the world (UNAIDS

2007). Moreover, limited research has been conducted on the influence of HAART optimism on behaviours other than sexual risk-taking (International Collaboration on HIV Optimism 2003). In particular, unlike MSM populations, HAART optimism may influence reproductive behaviors of HIV-positive women through changes in concerns about vertical transmission (Kirshenbaum et al. 2004).

Uganda is an ideal setting to investigate issues related to women's HAART optimism since it is a country currently experiencing a generalized HIV epidemic, fueled primarily by heterosexual transmission (UNAIDS 2007). HIV prevalence among adults aged 15–49 years in Uganda is estimated to be 6.3% and is higher among women (7.5%) than men (5.0%) (Government of Uganda 2008). HAART scale-up efforts in Uganda began in earnest in 2004 and recent government statistics estimate that approximately 120,000 Ugandans are currently on treatment, accounting for slightly more than one-third of those who need it (WHO 2008). At 6.6, Uganda has the second highest total fertility rate in Africa (WHO 2006) and recent findings report that HIV-positive women on HAART are three times more likely to report fertility desires, compared with HIV-positive women not on HAART (Maier et al. 2008). Previous research has demonstrated that self-reported fertility desires and intentions are strong predictors of future fertility (Bongaarts 1990; Pritchett 1994; Tan and Tey 1994; Miller 2004).

The purpose of this study was to develop a reliable HAART optimism scale for HIV-positive women in high prevalence settings and to test the scale's validity against a measure of fertility intentions and two measures of sexual behaviour (i.e., sexual abstinence and unprotected sex) among a sample of HAART-naïve and HAART-experienced women in Uganda.

Methods

Study Design

This analysis is based on data collected from a cross-sectional survey of 540 HIV-positive women aged 18–50 years attending an HIV clinic in Mbarara, western Uganda.

Study Setting

The study setting has been described in detail elsewhere (Andia et al. 2009). Briefly, Mbarara Regional Referral Hospital (MRRH) is located in Mbarara district, in southwestern Uganda. Housed within the MRRH is the Mbarara University HIV treatment centre, the Immune Suppression Syndrome (ISS) clinic. The ISS clinic opened in 1998 and currently serves over 13,000 clients, 65% of whom are women. The clinic offers comprehensive HIV care services, including HAART, free-of-charge. Approximately 35% of the clinic's population is currently receiving HAART.

Eligibility Criteria

HIV-positive women aged 18–50 years, attending the ISS clinic, and competent to give consent were eligible to participate in the study.

Data Collection

Women attending the ISS clinic were consecutively approached by a research assistant to assess eligibility and interest prior to requesting consent for participation in the study. Since non-HAART users attend the clinic less frequently than HAART users, non-HAART users were over-sampled.

Upon determining eligibility and consent, participants received a 20–30 minute interviewer-administered structured interview in either English or Runyankole (the dominant regional language). The Runyankole questionnaire was translated from the original English version into Runyankole, and then back-translated into English to ensure consistency between the two versions. The questionnaire was piloted among 40 women and was administered either before or after the patient's clinical encounter. Approximately 15 women were interviewed daily by three trained research assistants over 8 months from November 2005 to June 2006.

In addition to assessing HAART optimism, the questionnaire assessed socio-demographic characteristics, HIV/AIDS history, diagnosis, and treatment; sexual and reproductive behaviours; and fertility intentions. We conducted a medical record review to confirm HAART history and to obtain clinical data including WHO stage of disease (WHO 2004) and CD4 cell count. The medical record was considered the referent measure for inconsistencies between self-reported and medical record data.

Measuring 'HAART Optimism'

The questionnaire included 23 statements related to HA-ART, concern about HIV transmission to sexual partners and to unborn children through vertical transmission, and concern about severity of HIV disease. Eleven statements were taken from an existing and widely used HAART optimism scale validated for use among MSM populations (Van de Ven et al. 2000). While the Van de Ven scale is comprised of 12 statements, we excluded one item from our questionnaire because it was not relevant to our setting (i.e., "The availability of treatment (PEP) immediately after unsafe sex makes safe sex less important"). The remaining 11 items were subjected to focus group testing with ten Ugandan women to assess the interpretability of the scale statements in this setting. The statements were translated and back-translated from English to Runyankole, and were checked for cultural appropriateness and understanding by women of varying levels of formal education. After focus group testing, the language used for each statement from the previously validated scale was changed slightly to render it more understandable by women with lower levels of education. For instance, the term "undetectable viral load" was replaced with "a very small amount of virus". The other twelve statements were developed from a literature review and from the results of related qualitative interviews with Ugandan women.

Women were asked how much they agreed or disagreed with each of the 23 statements. Responses to each statement were scored from 1 (Strongly Disagree) to 4 (Strongly Agree), with some questions requiring inversion. The complete list of statements is included in "Appendix 1".

Measuring Reproductive and Sexual Behaviour Outcomes

The first outcome of interest was fertility intention. Fertility intention was assessed by answers to the question "Are you planning to have any (more) children in the future?"

The second outcome of interest was sexual activity/sexual abstinence in the previous 3 months. This variable was specific to vaginal intercourse.

The third outcome of interest was unprotected sexual activity (i.e., vaginal intercourse without a condom) in the previous 3 months. This analysis was restricted to women who reported being sexually active in the previous 3 months.

Data Analysis

We conducted univariate analyses of the baseline characteristics of our study population, including socio-demographic and clinical variables. Categorical variables are presented as

frequencies and percents while continuous variables are presented as medians and interquartile ranges [IQRs].

Factor Analysis

We subjected our dataset to a principal components and factor analysis to identify which of the 23 statements best expressed the construct of HAART optimism. The principal components analysis served as a data reduction method (i.e., to reduce the number of variables in the scale; Stat-Soft 2003).

We extracted the principal components via variance maximizing (i.e., varimax) whereby we identified the lines on which the variance was maximal, with each line representing a factor. Because each consecutive factor was defined to maximize the variability not captured by the preceding factor, consecutive factors were independent of each other. However, each consecutive factor accounted for less and less variability. We stopped extracting factors when there was only very little random variability left. We assessed the assumptions of varimax rotation using a non-orthogonal rotation (i.e., oblimin; StatSoft 2003).

We constructed a correlation matrix, where the variances of all items were equal to 1.0. In this way, the total variance in the matrix was equal to the number of items (i.e., 23). We calculated eigenvalues, representing the variance explained for each of the 23 items considered in the factor analysis. We then expressed the eigenvalues as a percent of the total variance. To select factors, we first applied the Kaiser criterion which states that we only retain factors with eigenvalues greater than one (Kaiser 1960). As the Kaiser criterion is a less conservative method for retaining factors, we also used the scree test to determine how many factors to maintain (Kline 1994). The scree test is a graphical method used to plot the eigenvalues. We located the point on the plot where the smooth decrease of the eigenvalues appears to level off. The “factorial scree” is found to the right of this plot, meaning that the primary factors are found to the left of that point. We combined the information from both the Kaiser criterion and the scree test and considered factor interpretability to identify which factors to maintain.

After identifying the primary factors, we used the squared multiple correlation of an item with all other items to estimate the communalities for each variable in the factor (StatSoft 2003).

We report Cronbach’s alpha (standardized) to demonstrate the internal reliability of each of the identified factors. While a scale is generally considered reliable if the Cronbach’s alpha coefficient is equal to or greater than 0.70 (Nunnally and Bernstein 1994), for exploratory studies such as this one, a coefficient of ≥0.60 is considered acceptable (Bland and Altman 1997). In addition, we used Pearson’s correlation coefficient to calculate an item-specific correlation for each scale. A correlation exceeding 0.40 was considered satisfactory correlation of items within the scale (Ware and Gandek 1998). We expected reliability coefficients (i.e., Cronbach’s alpha) to exceed inter-scale correlations for the same scale.

After testing the Cronbach’s alpha on the whole dataset, we randomly split the dataset into equal halves, re-ran the factor analysis on each half, and report the respective Cronbach’s alphas.

For the factor of primary interest identified from this analysis (i.e., that identifying “HAART optimism”), we calculated the mean, standard deviation, median, and interquartile range of the scores for descriptive purposes.

Testing the Association Between the Derived HAART Optimism Scale and Fertility Intentions and Sexual Behaviour Outcomes

To assess scale validity, we tested the association between the derived HAART optimism scale and fertility intentions, sexual activity, and unprotected sexual intercourse using the Wilcoxon rank sum test. The associations are reported using a crude odds ratio with a 95% confidence interval (95% CI).

Ethical Considerations

All participants provided informed consent and all procedures were approved by the *Faculty of Medicine Research and Ethics Committee* and the *Institutional Ethics Review Board* of Mbarara University, the Uganda National Council on Science and Technology, and the University of California, San Francisco Committee on Human Subjects. Study investigators only had access to de-identified data.

Results

Recruitment

A total of 540 women completed the questionnaire. Of these, 49% were HAART users with a median duration of HAART use of 15 months [IQR: 11–25 months].

Baseline Characteristics

Distributions of baseline characteristics are presented in Table 1. As shown, the median age was 34 years [29–39 years]. Overall, the majority of women had a primary school education or less (66%), belonged to the Kiga/Nkole tribe (81%), and were Christian (88%). Only 39% of the women were married, 30% were widowed, 23% were separated or divorced, and 8% were single. Two-thirds (66%) had a monthly household income less than 80,000 UGX (~ $50 USD). The median number of lifetime live-births was 3.0 [IQR: 2–5]. Most of the women had advanced HIV disease with 62% presenting in WHO Disease Stage III or IV and 35% reporting a most recent CD4 cell count <200 cells/mm^3 (of those with non-missing responses).

Factor Analysis

The eigenvalues of the correlation matrix for all 23 statements are shown in Table 2. The Kaiser criterion results revealed that seven items (with eigenvalues greater than one) accounted for 55% of the cumulative variance. Figure 1 plots the results of the scree test. As shown, the factorial scree occurs at the third factor indicating that the analysis identified three primary and distinct factors. We used varimax rotation to assess the change in grouping of the loadings in each factor. The factorial scree identified items that were highly interpretable.

Based on the eight statements that comprised factor 1, we labeled the scale “HAART optimism”. Included in this scale were statements about HAART-related optimism/skepticism regarding HIV transmission to sexual partners and to unborn children through vertical transmission. The second factor comprised four items and was labeled “State of the epidemic”. This factor included items related to changing opinions about the course of the HIV epidemic. The third factor was labeled “Trust of Information” about the epidemic from health care professionals and was made up of four items. Together, the communality between these three factors was 77%, with the first factor accounting for 32% of the communality, the second factor accounting for 25% and the third factor accounting for 20%. The total communality explained by these three factors did not change after varimax or oblique rotation.

The first factor, that identifying 'HAART optimism', was of primary interest to this study. This factor included eight statements (shown in Table 3), none of which were considered duplicates of one another. This factor, which we refer to as the derived HAART optimism scale, had moderately high internal consistency, with Cronbach's alpha = 0.70 in the overall sample. The item-total correlations ranged from 0.33 to 0.50 (Table 3). When we randomly divided the sample into halves, the Cronbach's alpha for the derived HAART optimism scale in the first half was 0.70 and 0.69 in the second half, indicating good internal consistency across items.

In the overall sample, the derived 8-item HAART optimism scale had a mean of 11.7 [SD = 4.2] and a median of 11 [IQR: 8–13], with a possible range from 8 (indicating high skepticism) to 32 (indicating high optimism).

Association Between the Derived HAART Optimism Scale and Fertility Intentions

Overall, 14% of women reported that they intended to have (more) children. Women who intended to have (more) children had significantly higher HAART optimism scores (median = 13.5 [IQR: 12–16]) than women who did not intend to have (more) children (median = 10.5 [IQR: 8–12]; $P < 0.0001$).

Association Between the Derived HAART Optimism Scale and Sexual Activity in the Previous 3 Months

We found that overall, 45% of women reported being sexually active in the previous 3 months. Women who reported being sexually active in the previous three months had significantly higher HAART optimism scores (median = 11 [IQR: 8–14]) than women who were sexually abstinent (median = 11 [IQR: 8–13]; $P = 0.0206$).

Association Between the Derived HAART Optimism Scale and Unprotected Sexual Activity in the Previous 3 Months

Of women who reported being sexually active in the previous 3 months ($n = 241$), 49% reported practicing unprotected sex. Women who reported practicing unprotected sex had significantly higher HAART optimism scores (median = 12 [IQR: 9–15]) than women who practiced protected sex (median = 11 [IQR: 8–13]; $P = 0.0157$).

Discussion

We developed a culturally appropriate eight-item HAART optimism scale that demonstrated moderately high reliability when applied to HIV-positive women in Uganda. The new scale incorporates concerns related to pregnancy and vertical transmission, in addition to those related to HIV transmission risk to sexual partners and severity of HIV disease. We have termed this new scale the *Women's HAART Optimism Monitoring and EvaluatioN scale*, or the WHOMEN's scale, version 1.

As evidenced from the new scale, overall women expressed low HAART optimism with 75% reporting a HAART optimism score of 13 or lower, out of a possible range from eight (highly skeptical) to 32 (highly optimistic). This suggests that women are still very cautious about the use and effectiveness of HAART on lowering risk of HIV transmission and believing that HIV infection is less of a threat to their health and survival. This finding is consistent with other research which suggests that individuals with high HAART optimism tend to be a minority within the population under study (Van de Ven et al. 2000; Elford et al. 2002; International Collaboration on HIV Optimism 2003; Kerrigan et al. 2006; Sullivan et al. 2007).

There is evidence that the brief and reliable WHO-MEN's scale has validity since women who report an intention to have (more) children have significantly higher HAART optimism than their counterparts who do not intend to have (more) children. Similarly, women who are currently sexually active and who practice unprotected sex have significantly higher HAART optimism scores than their counterparts who are sexually abstinent and who practice protect sex. It should be noted, however, that despite statistically significant differences between groups, the absolute difference in HAART optimism scores between groups was small.

Availability of HAART in Uganda has been relatively recent and it remains to be seen whether HAART optimism changes over time as HAART becomes more widely available. While a trend of increasing HAART optimism over time has not been noted in MSM populations (Elford et al. 2001), it remains to be seen whether the same trend will occur for women in terms of altering their reproductive intentions and sexual behaviour.

Fertility intentions and sexual behavior among HIV-positive women are, of course, mediated by a number of factors beyond simply HAART optimism (Bedimo et al. 1998; Kirshenbaum et al. 2004; Craft et al. 2007). From qualitative interviews with heterosexual women living with HIV and on HAART in Brazil, Kerrigan et al. (2006) report that none of the women connected their recent sexual behaviors to HAART optimism. Interestingly, heterosexual men in the same study tended to report fertility intentions as a reason for not wanting to use condoms. No peer-reviewed studies were identified which have investigated gender differentials in HAART optimism and how this might influence reproductive and sexual behaviours. This type of research, explored in a longitudinal fashion, appears warranted.

It remains to be determined whether these findings are generalizable to women in other high HIV prevalence settings. Future studies should test the reliability and validity of the scale in other settings and construct multivariate analyses to determine the relative importance of HAART optimism vs. other factors (such as HAART use) in influencing fertility intentions (Maier et al. 2008).

The limitations of this study must be acknowledged. First, the cross-sectional nature of this analysis precludes us from determining causality. The direction of causality should be interpreted with particular caution since it has been suggested that high HAART optimism may follow risky sexual behaviors, rather than precede them (Huebner et al. 2004). This finding may be of particular importance to women and fertility intentions since those who intend to have (more) children may be more likely to be optimistic about HAART. Despite the cross-sectional association, our findings offer important information on the association between HAART optimism and fertility intentions and sexual behaviours that may have important implications for HIV prevention, family planning, and PMTCT programming, particularly as HAART access expands in high HIV prevalence settings. Second, there is a risk of social desirability bias whereby women may falsely report their optimism about HAART because they have been educated about HIV transmission and counseled to avoid pregnancy. If false reporting was differential, with those reporting fertility intentions, for instance, more likely to report falsely report HAART skepticism, then our effect estimates are likely somewhat inflated. During the data collection process we took precautions against reporting bias by including standardized questions and using non-clinic staff to conduct the interviews. Third, the associations provided here are crude. Future studies should investigate the reliability and validity of the WHOMEN's scale on different data sources and conduct multivariate analyses to assess the role of potential confounders in mediating the association between HAART optimism and women's fertility intentions and sexual behaviours.

Despite these limitations, our brief, reliable, and valid scale, termed the *Women's HAART Optimism Monitoring and EvaluatioN scale* (WHOMEN's scale), may be valuable to broader studies investigating the role of HAART optimism on reproductive intentions and sexual behaviours of HIV-positive women in high HIV prevalence settings.

Acknowledgments

This research was supported by the National Institutes of Health (NIMH 54907). David R. Bangsberg received support from the National Institute on Alcohol Abuse and Alcoholism (NIAAA 015287). Angela Kaida is supported by the Canadian Institutes of Health Research and the Michael Smith Foundation for Health Research. We would like to thank the research and clinical staff and clients at the Mbarara Regional Referral Hospital Immune Suppression Syndrome Clinic.

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Appendix 1

See Table 4

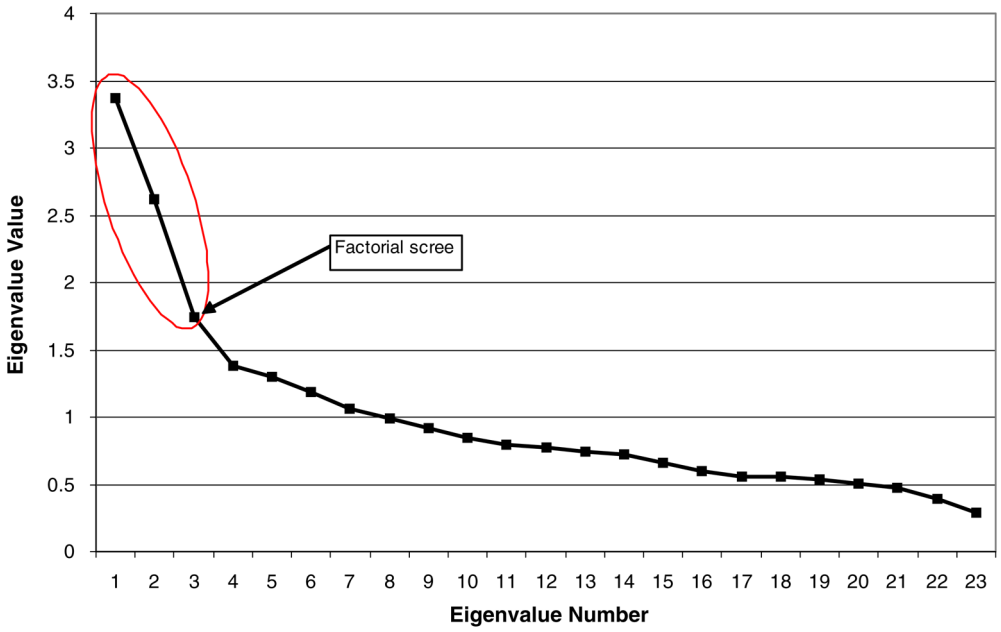

Fig. 1.
Results of the scree test

Table 1

Characteristics of study population of HIV-positive women in Mbarara, Uganda (n = 540)

Variable	*N*	%
Median age [*IQR*]	34 [29–39]	
Education		
Primary school or less	356	66
Secondary school and higher	184	34
Tribe		
Kiga/Nkole	438	81
Other	102	19
Religion		
Christian	475	88
Other	65	12
Marital status		
Currently married	209	39
Divorced/Separated	125	23
Widowed	164	30
Single	42	8
Household income (per month)[a]		
0–20,000 UGX	166	32
20,001–80,000 UGX	178	34
80,001 + UGX	181	34
Median lifetime livebirths [*IQR*]	3.0 [2.0–5.0]	
Most recent CD4 count		
<50	45	8
50–199	91	17
200–499	147	27
500+	63	12
Missing	155	29
WHO stage[b]		
Stage 1 or 2	188	38
Stage 3 or 4	313	62
Current HAART use		
Yes	263	49
No	277	51

Notes: SD, standard deviation; IQR, interquartile range

[a] 3% of participants did not report household income

[b] 7% of participants did not have information on WHO stage of disease

Table 2

Principal component factor analysis of 23 statements about HAART

Factor	Eigenvalue	Difference	% of total variance	% cumulative variance
1	3.37	0.75	14.6	14.6
2	2.62	0.87	11.4	26.0
3	1.74	0.36	7.6	33.6
4	1.38	0.08	6.0	40.0
5	1.30	0.11	5.6	45.2
6	1.18	0.12	5.1	50.4
7	1.06	0.07	4.6	55.0
8	0.99	0.08	4.3	59.3
9	0.91	0.07	4.0	63.3
10	0.84	0.05	3.7	67.0
11	0.79	0.02	3.5	70.4
12	0.78	0.03	3.4	73.8
13	0.74	0.02	3.2	77.0
14	0.72	0.07	3.2	80.1
15	0.66	0.06	2.9	83.0
16	0.60	0.04	2.6	85.6
17	0.56	0.01	2.4	88.0
18	0.55	0.02	2.4	90.4
19	0.53	0.02	2.3	92.8
20	0.51	0.03	2.2	95.0
21	0.48	0.08	2.1	97.0
22	0.39	0.10	1.7	98.7
23	0.29		1.3	1.00

Table 3

Statements constituting the derived HAART optimism scale for use among HIV-positive women of reproductive age living in high HIV prevalence countries

Question: Considering the new medicines available to treat HIV, please tell me how much you agree or disagree with the statements I read to you. Do you strongly agree, agree, disagree, or strongly disagree with the statement?		
	Statement	**Corrected item-total correlation**
1.	A person with virus that has been turned off in the body (a very small amount of virus in the body) cannot pass the virus to someone else	0.36
2.	If a cure for AIDS were announced, I would stop practicing safe sex (abstinence, being faithful, or using a condom)	0.33
3.	People with a very small amount of virus in the body do not need to worry about infecting others with HIV	0.34
4.	I believe that new drug therapies make people with HIV less able to pass the virus to other people	0.50
5.	I am not worried about becoming pregnant because of available HIV treatments	0.35
6.	If my partner and I were both on HIV treatments, it would be OK to stop using condoms	0.45
7.	It would be OK to stop HIV medicines if they made me sick, especially if I were pregnant (inverted)	0.53
8.	Now that HIV medicines are available, I want to have a baby because I will live long enough to raise a child	0.35

Table 4

Complete list of statements included in the questionnaire

#	Statement	Van de Ven's scale (2000)	New scale: factor 1 HAART optimism	New scale: factor 2	New scale: factor 3
1	A person with virus that has been turned off in the body (a very small amount of virus in the body) cannot pass the virus to someone else	X	X		
2	A person's CD4 count will remain about 200 (at a safe level) if they stay on therapy				X
3	I'm less worried about HIV infection than I used to be	X		X	
4	New HIV treatments will take the worry out of sex	X			X
5	If every HIV positive person took the new treatments, the AIDS epidemic would be over	X			
6	If a cure for AIDS were announced, I would stop practicing safe sex (abstinence, being faithful, or using a condom)	X	X		
7	People with a very small amount of virus in the body do not need to worry about infecting others with HIV	X	X		
8	Until there is a complete cure for HIV/AIDS, prevention is still the best practice (reverse scored)	X			
9	HIV is less of a threat because the epidemic is on the decline	X		X	
10	HIV/AIDS is a less serious threat than it used to be because of new treatments	X		X	
11	It's never safe to have sex without a condom regardless of the amount of virus in the body (reverse scored)	X			
12	Because of new treatments, fewer people are becoming infected with HIV	X			
13	I believe that new drug therapies make people with HIV less able to pass the virus to other people		X		
14	I am less worried about HIV infection now that treatments have improved			X	
15	I am not worried about becoming pregnant because of available HIV treatments		X		
16	If I become pregnant, I would be worried about passing HIV on to my baby, even if I were taking HIV treatments (reverse scored)				
17	I think the risks of HIV transmission in pregnancy are less than what doctors say				X
18	I think the risks of HIV transmission with "safer sex" (using abstinence, being faithful, and using condoms) are less than what doctors say				X
19	If my partner and I were both on HIV treatments, it would be OK to stop using condoms		X		
20	HIV treatments/medicines could be harmful during pregnancy because of possible birth defects (reverse scored)				
21	It would be OK to stop HIV medicines if they made me sick, especially if I were pregnant		X		
22	Now that HIV medicines are available, I want to have a baby because I will live long enough to raise a child		X		
23	I am worried that HIV medicines could cause AIDS (reverse scored)				

AIDS Behav. Author manuscript; available in PMC 2013 March 25.