

# Sexual Behavior of HIV-Positive Women in Cameroon

Journal of the International  
Association of Providers of AIDS Care  
12(2) 98-102  
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sagepub.com/journalsPermissions.nav  
DOI: 10.1177/1545109711421640  
jiapac.sagepub.com



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## Abstract

This study aimed at describing the sexual behavior of HIV-positive women in Cameroon. In a cross-sectional study, 282 HIV-infected women were enrolled in 3 HIV-treatment clinics in Cameroon. Of the 282 participants, 257 had been diagnosed with HIV for more than 6 months. Approximately half (46.8%) of these 257 women reported no sex partners in the 6 months before the study; 42.9% had 1 partner; and 1.5% had more than 1 partner. There was a significant decrease in the number of partners, new partners, and an increase in condom use with these partners following HIV diagnosis ( $P$  value < .05). However, more than half (55.2%) of the sexually active participants reported inconsistent or no condom use during sexual intercourse. Although HIV-positive women tend to adopt less risky behavior after HIV diagnosis, a substantial proportion of sexually active ones still have risky behaviors. Reinforcing risk reduction programs for these women is imperative.

## Keywords

sexual behavior, women, HIV

## Introduction

Worldwide, most new HIV infections result from sexual transmission mainly heterosexual intercourse.<sup>1</sup> The number of people living with HIV has continued to rise despite the interventions being implemented. Sub-Saharan Africa remains the worst affected region to date. The advent of highly active antiretroviral therapy (HAART) has led to increased life expectancy, a better quality of life, and a likely increase in sexual activity,<sup>2,3</sup> thus resulting in a potential for further sexual transmission. In women, improved quality of life may result in the quest to have children, thus exposing themselves to further HIV infections, other sexually transmitted infections (STIs), the possibility of acquiring drug-resistant strains of HIV and of transmitting HIV to others.<sup>4,5</sup> Although it is expected that as a result of counseling these women will be discouraged from engaging in risky sexual behavior, it is not clear how well they adhere to this advice. In a previous study in one region in Cameroon we documented risky sexual behavior among discordant couples.<sup>6</sup> Studies from other African countries have reported persistent risky behavior among participants after HIV diagnosis.<sup>7-9</sup> We could not find published data on the sexual behavior of HIV-infected women in Cameroon. Such data that would provide information on the number of partners these women have and their use of condoms with regular and nonregular partners could be useful in the design of public health interventions to reduce risky sexual behavior and the incidence of HIV infection in target groups.

In this study, we investigate whether HIV-infected women in Cameroon carry out risky sexual behaviors such as inconsistent condom use or having multiple partners despite their known HIV status. We also wanted to identify any demographic correlates of such risky behavior, which could be used in preparing risk reduction programs among infected persons.

## Methods

### Design and Population

We conducted a cross-sectional descriptive study among participants enrolled in 3 HIV care clinics found in high-prevalence regions in Cameroon.<sup>10</sup> These were the Bamenda Regional

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**Table 1.** Demographic and Clinical Characteristics of Study Population of HIV-Positive Women in Cameroon.

Characteristic	Description of Parameter	No/Total	Proportion (%)
Age (years)	18-29	72/281	25.6
	30-39	124/281	44.1
	40-49	53/281	18.9
	50+	32/281	11.4
Civil status	Single	60/282	21.3
	Married/in partnership	99/282	35.1
	Separated/divorced/ widowed	123/282	43.6
Level of education	None	14/282	5
	Primary	135/282	48
	Secondary	121/282	43
	Tertiary	12/282	4
Site of residence	Urban	207/282	73
	Rural	75/282	27
CD4 count (cells/mm <sup>3</sup> )	<200	156/267	58.4
	≥200	111/267	41.6
Clinical HIV stage	1	8/282	2.8
	2	46/282	16.3
	3	168/282	59.6
	4	60/282	21.3

Hospital in the North West region, Limbe Regional Hospital in the South West region, and the Nylon District Hospital in the Littoral region. This study was part of a larger study assessing the “Prevalence, severity and predictors of cervical epithelial lesions among women initiating HAART in Cameroon.” We recruited nonpregnant consenting HIV-infected women initiating HAART in the above clinics.

Ethical approval was obtained from the Cameroon National Ethics Committee and The University of North Carolina biomedical institutional review board (IRB). Administrative authorizations were obtained from the Ministry of Public Health of Cameroon and from the different health clinics in which the study was undertaken. After appropriate information and assurances of confidentiality were given to eligible women, a written consent was required for participation in the study.

### Study Procedures

Consecutive, eligible, and consenting women attending the study sites in the months of August and September 2008 were interviewed, by trained research assistants, face-to-face, with the aid of structured and pretested questionnaires. Relevant data on their HIV status and sexual habits were collected in a questionnaire made up of 4 main parts: participant identification number; medical history including HIV, gynecological, obstetrical and sex history; demographics and an overall assessment of HIV stage (using the World Health Classification [WHO] classification) and CD4 count in the patient’s record.

Concerning their sex history, participants were asked to provide information on their age at first sexual intercourse, number of partners (lifetime and new), and number of partners 1 year prior to HIV diagnosis, since HIV diagnosis, and in the last

6 months with HIV. Information on the regularity of condom use with these partners was also obtained. Risky behavior was defined as inconsistent or no condom use with sex partners since HIV diagnosis.

### Sample Size Considerations

The larger study in which this analysis was embedded enrolled 282 women. We assessed this sample size to be adequate for this analysis because with 282 women, we would have been able to detect a 10% risky behavior prevalence with a marginal error of 3.5%, a 20% risky behavior prevalence with a marginal error of 4.7%, and a 50% risky behavior prevalence with a marginal error of 5.8%.

### Data Analysis

Data obtained from the questionnaires were entered in Epi-info 3.2 and analyzed using SAS version 9.1 (SAS institute, Cary, North Carolina) statistical software. Proportions were computed for categorical variables while means and medians were computed for continuous variables. Proportions were compared using chi-square tests while medians were compared using sign tests. A *P* value of less than .05 was considered statistically significant.

## Results

### Study Population Characteristics

A total of 282 women were included in this analysis. The mean duration of living with an HIV diagnosis was 18 months. The mean age ( $\pm$  standard deviation [SD]) of these women was  $36.3 \pm 3.6$  years. Most participants were separated, divorced, or widowed, and most had a secondary level of education. A high proportion of the women resided in an urban region and had an advanced stage III HIV infection (Table 1). The mean of the most recent CD4 count was 179.0 cells/mm<sup>3</sup>, with values ranging from 1 to 1759.

### Sexual Behaviors

The mean age at first sexual intercourse was 16.9, with a standard deviation of 2.4 and a range of 12 to 27 years. As many as 30.3% of participants had had more than 5 partners in their lifetime. Only 3.9% reported having had only 1 partner. Close to a third (36.2%) of participants had never used condoms with the partners they had during their lifetime, while only 1.1% of them had always used condoms.

Changes in sexual behavior following HIV diagnosis were quantified using 2 sets of parameters: (1) the number of partners, new partners as well as condom use with these partners and (2) the change in the frequency of sexual activity before and after HIV diagnosis.

The number of partners, number of new partners, and condom use with these partners at different periods with HIV is shown in Table 2. Overall, compared to the year preceding HIV

**Table 2.** Sexual Behavior at Different Periods Prior to and after HIV Diagnosis in Women in Cameroon.

Parameter	One Year Prior to HIV Diagnosis		Since HIV Diagnosis		In the Last 6 Months with HIV	
	n/N	%	n/N	%	n/N	%
Number of partners						
0	43/275	15.6	127/282	45	132/282	46.8
1	179/275	65.1	136/282	48.2	121/282	42.9
>1	53/275	19.3	19/282	6.8	4/282	1.5
Condom use with these partners						
Never	128/281	45.6	29/281	10.3	24/281	9
<50% of the time	87/281	31	37/281	13.1	25/281	9
≥50% of the time	19/281	6.8	19/281	6.8	14/281	5
Always	4/281	1.4	69/281	24.6	60/281	21
No partner	43/281	15.2	127/281	45.2	158/281	56
Number of new partners						
0	196/278	70	233/282	82.3	229/282	81.2
1	68/278	24.5	40/282	14.2	27/282	9.6
>1	14/278	5.5	9/282	3.5	1/282	0.3
Condom use with new partners						
Never	46/280	16.4	9/282	3.2	5/282	1.8
<50% of the time	29/280	10.3	13/282	4.6	8/282	2.8
≥50% of the time	8/280	2.9	6/282	2.1	2/282	0.7
Always	1/280	0.4	22/282	7.8	13/282	4.6
No partners	196/280	70	232/282	82.3	254/282	90.1

diagnosis, there was a significant increase in the number of women reporting no partner and no new partner after HIV diagnosis ( $P < .01$ ). There was also an increase in the proportion of women who reported always using condoms with all partners and new partners ( $P < .01$ ). Nonetheless, 6.8% of women reported having more than 1 partner since HIV diagnosis, with 10.3% never using condoms with these partners. A new partner after HIV diagnosis was reported by 17.7% of women, with 3.2% reporting never using condoms with these new partners.

The change in the frequency of sexual intercourse after HIV diagnosis is shown in Figure 1. On average, there was a reduction in the average monthly sex frequency after HIV diagnosis (mean change =  $-3.03$ , Sign test  $P$  value  $< .001$ ). The median change in this frequency was  $-1$  (interquartile range =  $-4$  to  $0$ ). There was no reduction in frequency in 25.2% of sexually active women (18% remained constant while 7% reported an increase).

We assessed the factors associated with risky behavior defined as inconsistent or no condom use since HIV diagnosis among the sexually active participants. This definition excluded 127 participants who had had no partner since their HIV diagnosis. Risky behavior was not significantly associated with any of the patient characteristics considered (Table 3). Nevertheless, risky behavior tended to be more frequent in women older than 30 as well as in women from rural areas.

## Discussion

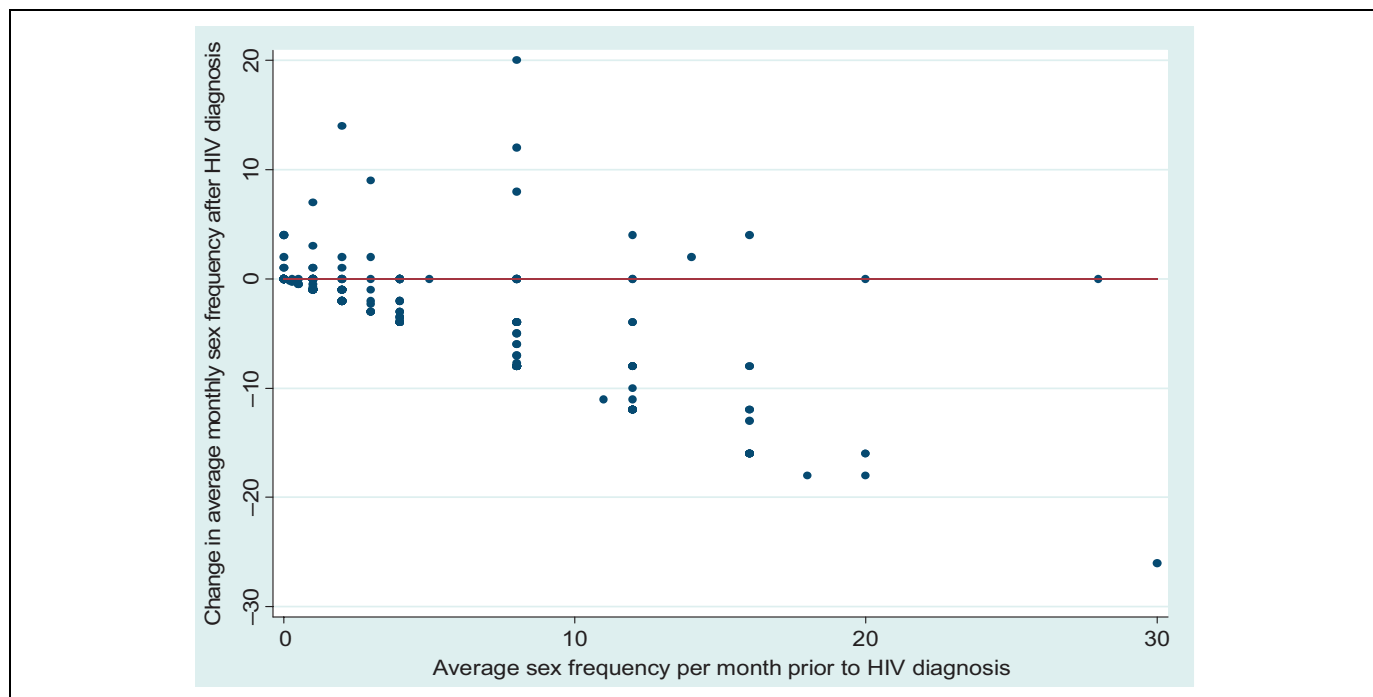
In this study, we report on the sexual behavior of HIV-positive women in Cameroon. Overall, there was a decrease in sexual activity following HIV diagnosis. The number of partners as well as the number of new partners decreased in the past 6

months with HIV diagnosis as compared to the period before HIV diagnosis. Condom use increased in the same period. Majority of participants had no partner or were abstinent after HIV diagnosis. Although this may reflect our sample with a high proportion of separated, widowed, or divorced women, this finding is similar to that reported in Cote-d'Ivoire.<sup>11</sup>

Although there was a statistically significant change in the number of partners and the frequency of condom use with partners or new partners after knowing their status, there were still some participants involving in unsafe sex. Studies in the United States,<sup>12</sup> Sao Paulo state in Brazil,<sup>10</sup> and Kenya<sup>14</sup> have also reported lower prevalence of unprotected intercourse in HIV-infected people who were aware of their status compared to those who were unaware. These changes could be due to prevention responsibility, altruism, and counseling messages within positive prevention interventions as reported by a study in Uganda.<sup>15</sup> More so, there was a significant reduction in the frequency of sexual intercourse after HIV diagnosis.

Although positive changes were noted following HIV diagnosis, a considerable proportion of the sexually active participants (55.2%) still continued to carry out risky sexual behavior—that is, not using a condom or using it inconsistently. Studies in the United States and in Jamaica pointed out that following HIV diagnosis some HIV-infected women still continued involving unsafe sex.<sup>16,17</sup> This finding supports the promotion of risk reduction programs even among HIV-positive individuals.

It is not clear why some women engage in risky behavior. We found no association in our study between patient characteristics and risky sexual behavior. Risky behavior is thought to be due to the desire to have children as shown by a study in Burkina Faso,<sup>18</sup> though we had no such finding. The parity



**Figure 1.** Change in average monthly sex frequency after HIV diagnosis compared with prior to HIV diagnosis.

**Table 3.** Association between Patient Characteristics and Risky Sexual Behavior in HIV-Positive Women in Cameroon.

Characteristic	Level	N	Bivariate		Multivariate	
			Risky Behavior (%)	P Value	Adjusted Odds Ratio <sup>a</sup>	95% CI
Age (years)	18-29	45	46.7	.19	Ref	0.9, 4.4
	30+	108	58.3		2.0	
Marital status	Single, never married	32	62.5	.36	1.2	0.4, 3.6
	Married/in partnership	84	50.0		0.6	0.3, 1.4
	Separated/divorced/widowed	38	60.5		Ref	
Education	None/primary	69	53.6	.72	Ref	0.7, 3.3
	Secondary/tertiary	85	56.5		1.6	
Residence	Urban	117	52.1	.17	Ref	0.8, 4.6
	Rural	37	64.9		2.0	
Parity	≤2	90	55.6	.92	Ref	0.4, 1.8
	>2	64	54.7		0.9	
HIV clinical stage	I/II	37	54.1	.87	Ref	0.5, 2.7
	III/IV	117	55.6		1.2	

Abbreviations: Ref, referent level; CI, confidence interval.

<sup>a</sup> Adjusted for all other characteristics listed in the table.

among the HIV-infected women was comparable to that of the general population and there was no association found between inconsistent condom use and parity. This could be due to the fact that most of the women had had children before testing positive.

The persistence of sexual risk could also be as a result power differentials between men and women—and the possibility that women may not have disclosed their HIV diagnosis to their partners, their partners may not have been willing to use condoms, or their partners may have been HIV positive as well. To better guide the design of health education messages, future

studies would need to explore the reasons for persistent risky behavior after HIV diagnosis.

Our analysis was based on self-reported risk, and it is possible that high-risk sexual behavior may have been underreported because of social desirability bias or because of the associated stigma.<sup>19</sup> To minimize this bias though, a rapport was developed between the interviewers and the patients by discussing other medical history questions for at least 10 minutes before discussing the sexual history. Furthermore, an attempt was made at increasing participants’ confidence by making all questionnaires confidential and anonymous. Future studies in

this context may want to allow the patients to fill the questionnaires by themselves, though this may also be limited by the little or no experience participants have with filling questionnaires in our milieu.

Our assessment of risk may also be limited by the fact that we did not have data on the status of the partners at any given period, the type of sexual intercourse (greater exposure to HIV is expected with anal than vaginal intercourse), or a history of sexual intercourse during menses.

We conclude from our findings that there was a significant change in sexual behavior after HIV diagnosis, with safer sex practices increasing after awareness of the HIV-positive status. Nevertheless, a substantial proportion of sexually active women still continued having unprotected sexual intercourse even after knowing their HIV status. No particular patient characteristic such as age, marital status, parity was associated with risky behavior. There is therefore a need to implement and or reinforce risk reduction programs directed at HIV-positive patients. Strategies to improve the effectiveness of these programs also need to be assessed.

### Acknowledgment

We thank the Directors of Bamenda and Limbe Regional Hospitals and Douala District Hospital for assisting with patient recruitment; the entire staff of the HIV care units of each of the institutions; all the women who accepted to be part of this study and gave their time to complete the questionnaire; and Drs Sume Gerald, Wandji Brigitte and Egbearong Ashu for assistance with patient recruitment and interviews.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

This study was funded by a Developmental Award from The University of North Carolina at Chapel Hill's Center for AIDS Research (CFAR Grant Number NIH #9P30 AI 50410) to Dr Julius Atashili. Dr Atashili also received support from NIH Fogarty grant DHHS/NIH/FIC 5 D43 TW01039-08 AIDS International Training and Research Program. The Ministry of Public Health in Cameroon runs the HIV care services of the Bamenda and Limbe Regional Hospitals and the Nylon District Hospital.

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