

HIV seropositivity and sexuality: cessation of sexual relations among men and women living with HIV in five countries

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ABSTRACT

The sexuality of people living with HIV (PLHIV) is a key issue in the fight against HIV, as it influences both the dynamic of the epidemic and the quality of life of PLHIV. The present study examined the factors associated with cessation of sexual relations after HIV diagnosis among men and women in five countries: Mali, Morocco, Democratic Republic of the Congo, Romania and Ecuador. A community-based cross-sectional study was implemented by a mixed consortium [researchers/community-based organizations (CBO)]. Trained CBO members interviewed 1500 PLHIV in contact with CBOs using a 125-item questionnaire. A weighted multivariate logistic regression and a separate gender analysis were performed. Among the 1413 participants, 471 (33%) declared that they stopped having sexual relations after their HIV diagnosis, including 318 women (42%) and 153 men (23%) ($p < .001$). Concerning women, variables associated with the cessation of sexual relations in the final multivariate model were mainly related with relational factors and the possibility of getting social support (e.g., needing help to disclose HIV serostatus, feeling lonely every day, not finding support in CBOs, not being in a couple). Men's sexual activity was more associated with their representations and their perception of the infection (e.g., thinking they will have their HIV infection for the rest of their life, perceiving the HIV infection as a mystery, perceiving the infection as serious). Furthermore, the following variables were associated with both men and women sexual behaviours: being older, having suffered from serious social consequences after serostatus disclosure and not being able to regularly discuss about HIV with their steady partner. Results suggested clear differences between men and women regarding cessation of sexual relations and highlighted the importance of implementing gender-based tailored interventions that promote safe and satisfying sexuality, as it is known to have a positive impact on the overall well-being of PLHIV.

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Introduction

The impact of HIV on the emotional and sexual lives of PLHIV has been documented in several studies. PLHIV's sexuality can be severely disrupted for various reasons (e.g., fear of contaminating one's sexual partner, absence of sexual desire) (Schiltz, Bouhnik, Préau, & Spire, 2006; Siegel, Schrimshaw, & Lekas, 2006). Moreover, anti-retroviral (ARV) therapy may cause visible bodily changes (e.g., weight loss/gain, skin problems) as well as side effects, both having a negative effect on sexual activity (Collazos, Martínez, Mayo, & Ibarra, 2002; Santos et al., 2005; Schrooten et al., 2001). The consequences of HIV infection on sexual life merits greater investigation. Few data are available about how PLHIV adapt their sexual life after HIV diagnosis, and about the determinants of sexual behaviours after

diagnosis (Siegel & Raveis, 1993; Siegel & Schrimshaw, 2003). One of the behaviours PLHIV may adopt is to stop having sex. Accordingly, the objective of this study was to investigate the factors associated with stopping sexual relations after HIV diagnosis.

Methods

This is a sub-study of "Partages", a community-based cross-sectional study on HIV disclosure among PLHIV frequenting community-based organizations (CBO) in Romania, Morocco, Mali, Democratic Republic of the Congo and Ecuador. Ethical approval was obtained in the five countries. The inclusion criteria were: being HIV positive, being 18-year-old and over and being

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aware of one's seropositivity for more than six months. Trained CBO members administered in 2011 a 125-item questionnaire to a convenience sample of 1500 PLHIV (300 per country). The cessation of sexual intercourse was assessed with the following question: "Since your HIV diagnosis, did you stop having sexual relations because of your seropositivity?"

Statistical analysis

The sample was weighted according to gender and age of the active file of CBOs, and the analysis was restricted to the participants who answered the above-mentioned question. As the determinants of sexuality are gender-dependent (Siegel & Schrimshaw, 2003), we separately worked for men and women. Potential explanatory variables (see description in supplementary material) with $p \leq .20$ in the univariate analyses were included in the multivariate analyses. Additionally, two scales were considered (see description in Table 1). We adjusted on the country for both models, and on the variable "sexual relations with same-sex persons" for men. The final multivariate models were built using a backward elimination approach based on the log-likelihood ratio test ($p \leq .05$). The area under the ROC curve (AUC) was used to assess the models' ability to discriminate (Hosmer & Lemeshow, 2000). Data management and statistical analyses were performed using SPSS v20.0.

Table 1. Description of the scales used in the analysis to identify the factors associated with the cessation of sexual relations^a.

Scale	Definition	Interpretation	α
Perceived seriousness of HIV infection (adapted using the Revised Illness Perception Questionnaire: Consequence subscale (IPQ-R) (Moss-Morris et al., 2002))	This scale assessed the perceived degree of seriousness of HIV infection	Four of the five items were kept. A high score corresponds to serious perceived consequences	0.83
Serious social consequences scale	This scale assessed if the participant suffered serious social consequences (e.g., living apart from his/her family/children, experiencing physical violence, being insulted, being separated from his/her spouse/partner, because of his/her seropositivity)		0.80

^aValidated scales were pre-tested on the field and then adapted. All the items were simplified to a binary choice: Agree/Yes (1) vs Disagree/No (0). Global scores were constructed as the sum of item scores. The unidimensionality of each scale was validated with a principal factor analysis of the tetrachoric correlation matrix, and the internal consistencies were assessed via ordinal alphas (α) (Gadermann, Guhn, & Zumbo, 2012). The results of the factor analyses were good for each scale.

Results

Among the 1500 participants, 1413 had answered the question related to cessation of sexual relations. Their socio-demographic characteristics are described in Table 2. Among them, 470 (33.3%) declared that they had ceased sexual intercourse because of HIV seropositivity, including 42.0% of women (317/755) and 23.2% of men (153/658) ($p < .001$).

Regarding women, the factors significantly associated with the cessation of sexual relations in multivariate analysis (Table 3) were: being older (odds ratio [95% confidence interval]: 1.05 [1.03–1.07]), not being in a relationship (0.21 [0.13–0.32]), having learned their HIV diagnosis more recently (0.92 [0.87–0.98]), needing help to disclose HIV serostatus (2.08 [1.15–3.76]), having a higher score on the serious social consequences scale (1.38 [1.11–1.71]), not regularly discussing about HIV with their steady partner (0.28 [0.17–0.44]), declaring feeling lonely every day (2.63 [1.43–4.81]) and not finding support in CBOs (0.53 [0.31–0.90]).

Concerning men, the factors significantly associated with the cessation of sexual relations in multivariate analysis (Table 4) were: being older (1.03 [1.01–1.05]), having performed their HIV test because of symptoms (2.10 [1.24–3.56]), thinking that you will not be infected by HIV for your whole life (0.46 [0.27–0.78]), having a higher score on the perceived seriousness of HIV infection scale (1.61 [1.36–1.92]), perceiving their HIV infection as a mystery (1.83 [1.08–3.10]), having a higher score on the serious social consequences scale (1.68 [1.25–2.25]), not regularly discussing about HIV with

Table 2. Socio-demographic characteristics of participants included in the analysis ($n = 1413$).

	n (%) or mean (SD)
Country	
Ecuador	294 (20.8%)
Mali	294 (20.8%)
Morocco	273 (19.3%)
Democratic Republic of Congo	277 (19.6%)
Romania	276 (19.5%)
Age (years)	36.5 (10.6)
Sex	
Man	658 (46.6%)
Woman	755 (53.4%)
Main activity	
Unemployed/student/housewife	619 (43.8%)
Formal or informal employment	793 (56.1%)
Current relationship status	
Not in a relationship	644 (45.6%)
In a relationship	768 (54.4%)
Having children	
No	458 (32.4%)
Yes	954 (67.5%)
Sexual relations with same-sex persons	
No	1309 (92.6%)
Yes	104 (7.4%)

Note: SD, standard deviation.

Table 3. Factors associated with the cessation of sexual intercourse for women ($n = 775$), univariate and multivariate analyses.

	<i>n</i> (%) or mean (SD)					
	Women who did not cease sexual intercourse ($n = 438$)	Women who ceased sexual intercourse ($n = 317$)	OR [95% CI] ^a	<i>p</i>	aOR [95% CI] ^b	<i>p</i>
Age (years)	33.5 (9.2)	38.9 (11.0)	1.05 [1.04–1.07]	<.001	1.05 [1.03–1.07]	<.001
<i>Current relationship status</i>						
Not in a relationship	123 (28.1%)	248 (78.2%)	1	<.001	1	<.001
In a relationship	315 (71.9%)	69 (21.8%)	0.11 [0.08–0.15]		0.21 [0.13–0.32]	
<i>Sexual relations with same-sex persons</i>						
No	429 (97.9%)	313 (98.7%)	–	.412	–	–
Yes	9 (2.0%)	4 (1.3%)				
Number of years since HIV diagnosis (years)	5.8 (4.1)	4.8 (3.6)	0.94 [0.90–0.97]	.001	0.92 [0.87–0.98]	.01
<i>HIV test because of symptoms</i>						
No	178 (40.6%)	114 (36.0%)	–	.201	–	–
Yes	259 (59.1%)	201 (63.4%)				
<i>HIV for the rest of your life</i>						
No	176 (40.2%)	161 (50.8%)	1	.004	–	–
Yes	262 (59.8%)	156 (49.2%)	0.65 [0.49–0.88]			
Perceived seriousness of HIV infection (scale)	2.5 (1.7)	2.8 (1.6)	1.14 [1.05–1.25]	.003	–	–
<i>HIV infection perceived as a mystery</i>						
No	186 (42.5%)	117 (36.9%)	1	.121	–	–
Yes	252 (57.5%)	200 (63.1%)	1.26 [0.94–1.7]			
<i>Need of help to disclose HIV serostatus</i>						
No	398 (90.9%)	272 (85.8%)	1	.025	1	.02
Yes	39 (8.9%)	45 (14.2%)	1.68 [1.07–2.65]		2.08 [1.15–3.76]	
Serious social consequences (scale)	0.5 (0.8)	0.8 (1.0)	1.40 [1.19–1.65]	<.001	1.38 [1.11–1.71]	.004
<i>Regular discussions about HIV with steady partner</i>						
No	171 (39.0%)	270 (85.2%)	1	<.001	1	<.001
Yes	263 (60.0%)	46 (14.5%)	0.11 [0.08–0.16]		0.28 [0.17–0.44]	
<i>Feeling of loneliness</i>						
No	254 (58.0%)	139 (43.8%)	1	<.001	1	.003
Yes, sometimes	142 (32.4%)	103 (32.5%)	1.33 [0.96–1.84]		0.96 [0.62–1.48]	
Yes, every day	39 (8.9%)	75 (23.7%)	3.52 [2.27–5.46]		2.63 [1.43–4.81]	
<i>Number of PLHIV known</i>						
≤1	47 (10.7%)	47 (14.8%)	1	.078	–	–
≥2	391 (89.3%)	270 (85.2%)	0.68 [0.44–1.04]			
<i>Find support in CBO</i>						
No	199 (45.4%)	176 (55.5%)	1	.006	1	.02
Yes	239 (54.6%)	141 (44.5%)	0.67 [0.50–0.89]		0.53 [0.31–0.90]	

Note: SD, standard deviation.

^aOR, odds ratio; CI, confidence interval/OR are only presented for variables included in the multivariate analyses ($p < .2$).

^baOR, adjusted odds ratio/OR adjusted on the variables presented here as well as the country/OR are only presented for variables for which $p \leq .05$ in the final multivariate analysis.

their steady partner (0.09 [0.05–0.15]), and knowing 2 or more PLHIV (0.48 [0.23–1.00]).

The AUC of these models are 0.83 and 0.80, respectively, which is a good degree of discrimination (Hosmer & Lemeshow, 2000).

Discussion

In this community-based study, one third of the participants declared having stopped sex after their HIV diagnosis. Women were almost twice as likely as men to have interrupted sexual relations because of HIV seropositivity (42% vs 23%).

Several variables were significant in both men and women. First, older people were more likely to stop having sex, as observed in the general population (Bajos & Bozon, 2011; Karraker & DeLamater, 2013), and, in a

stronger way, in PLHIV (Musunguzi et al., 2014; Rojas Castro, Le Gall, Andreo, & Spire, 2010; Schiltz et al., 2006).

Second, stopping sexual activity was significantly associated with having suffered serious social consequences because of HIV. Stigma and discrimination may inhibit sexual activity in PLHIV (Platteau et al., 2015; Rojas Castro et al., 2010) by exclusion or the fear of exclusion, leading to an attitude of isolation and repression of sexual behaviours (Inoue, Yamazaki, Seki, Wakabayashi, & Kihara, 2004).

Finally, talking regularly about HIV with one's steady partner was inversely associated with stopping sexual relations. The need for communication in a couple can be interpreted using the theory of social sharing of emotions (Rimé, 2005). In this context, it could help strengthen links with one's partner, thus explaining the continuation of sexual relations.

Table 4. Factors associated with the cessation of sexual intercourse for men ($n = 658$), univariate and multivariate analyses.

	<i>n</i> (%) or mean (SD)		OR [95% CI] ^a	<i>p</i>	aOR [95% CI] ^b	<i>p</i>
	Men who did not cease sexual intercourse ($n = 505$)	Men who ceased sexual intercourse ($n = 153$)				
Age (years)	36.6 (10.9)	39.3 (10.7)	1.02 [1.01–1.04]	.007	1.03 [1.01–1.05]	.01
<i>Current relationship status</i>						
Not in a relationship	167 (33.1%)	107 (69.9%)	1	<.001	–	–
In a relationship	338 (66.9%)	46 (30.1%)	0.21 [0.14–0.31]			
<i>Sexual relations with same-sex persons</i>						
No	432 (85.6%)	135 (88.2%)	–	.371	–	–
Yes	73 (14.4%)	18 (11.8%)				
Number of years since HIV diagnosis (years)	6.0 (4.5)	4.7 (3.9)	0.93 [0.89–0.97]	.002	–	–
<i>HIV test because of symptoms</i>						
No	184 (36.4%)	32 (20.9%)	1	<.001	1	.006
Yes	321 (63.6%)	121 (79.1%)	2.15 [1.40–3.31]		2.10 [1.24–3.56]	
<i>HIV for the rest of your life</i>						
No	174 (34.5%)	75 (49.0%)	1	.001	1	.004
Yes	330 (65.3%)	77 (50.3%)	0.54 [0.38–0.78]		0.46 [0.27–0.78]	
Perceived seriousness of HIV infection (scale)	2.4 (1.6)	3.5 (1.4)	1.62 [1.42–1.84]	<.001	1.61 [1.36–1.92]	<.001
<i>HIV infection perceived as a mystery</i>						
No	270 (53.5%)	46 (30.1%)	1	<.001	1	.025
Yes	235 (46.5%)	107 (69.9%)	2.69 [1.83–3.97]		1.83 [1.08–3.10]	
<i>Need of help to disclose HIV serostatus</i>						
No	461 (91.3%)	143 (93.5%)	–	.390	–	–
Yes	44 (8.7%)	10 (6.5%)				
Serious social consequences (scale)	0.3 (0.7)	0.7 (0.9)	1.72 [1.39–2.14]	<.001	1.68 [1.25–2.25]	.001
<i>Regular discussions about HIV with steady partner</i>						
No	170 (33.7%)	124 (81.0%)	1	<.001	1	<.001
Yes	335 (66.3%)	28 (18.3%)	0.12 [0.07–0.18]		0.09 [0.05–0.15]	
Feeling of loneliness						
No	325 (64.4%)	50 (32.7%)	1	<.001	–	–
Yes, sometimes	138 (27.3%)	51 (33.3%)	2.41 [1.56–3.74]			
Yes, every day	38 (7.5%)	46 (30.1%)	7.99 [4.74–13.47]			
<i>Number of PLHIV known</i>						
≤1	39 (7.7%)	35 (22.9%)	1	<.001	1	.05
≥2	466 (92.3%)	113 (73.9%)	0.27 [0.17–0.45]		0.48 [0.23–1.00]	
<i>Find support in CBO</i>						
No	292 (57.8%)	74 (48.4%)	1	.041	–	–
Yes	213 (42.2%)	79 (51.6%)	1.46 [1.02–2.10]			

Note: SD, standard deviation.

^aOR, odds ratio; CI, confidence interval/OR are only presented for variables included in the multivariate analyses ($p < .2$).

^baOR, adjusted odds ratio/OR adjusted on the variables presented here as well as the country and sexual relations with same-sex persons/OR are only presented for variables for which $p \leq .05$ in the final multivariate analysis.

Regarding women, significant factors were essentially social and psychosocial, reflecting the importance of the existence of a trustworthy circle of family and friends. For women, stopping sexual relations seems to be closely linked to being supported in managing their lives with HIV, whether by a partner, family members, friends or associations.

Furthermore, living in a couple was associated with reduced sexual abstinence. This could be interpreted by the sexual partner's willingness to engage in sexual relations, enabling them to avoid some problems linked to sexuality with HIV (e.g., searching for a partner, fear of transmitting the virus) (Bova & Durante, 2003; Siegel et al., 2006).

Finally, the more recent the HIV diagnosis, the greater the likelihood of cessation of sexual relations. Abstinence following HIV diagnosis can be interpreted as an avoidance response to bypass associated anxiety, especially that linked to the risk of transmission, to the issue of disclosure (Keogh, Beardsell, Davies, Hickson, &

Weatherburn, 1998) or to the condom negotiation (Keegan, Lambert, & Petrak, 2005).

With respect to men, analyses showed a predominance of psychosocial factors. As explained by the Leventhal's model of self-regulation, the disease representations affect both how people face their condition and the feeling of control over it (Leventhal, Diefenbach, & Leventhal, 1992). Herein, thinking that one's infection is mysterious and serious may reduce the feeling of self-efficacy, resulting in denial and avoidance behaviours such as stopping sexual relations.

Additionally, men who took an HIV test because of symptoms were more likely to cease having sexual relations. Poor physical condition, characterized by the presence of symptoms, can cause a reduction or interruption in sexual relations (Lindau et al., 2007). Moreover, the presence of severe physical symptoms is related to higher levels of depression (Perry, 1994), which can lead to decreased libido.

Conversely, knowing many PLHIV was associated with less cessation of sexual relations. HIV-positive men may be able to share their feelings about HIV infection, including issues of sexuality, with other PLHIV. These exchanges might have helped them to reduce their anxiety regarding sexuality. This might also be explained by the “serosorting” strategy.

Finally, we found no significant link between the interruption of sexual relations and sexual orientation in men, contrarily to the literature (Schiltz et al., 2006). This could be explained by under-reporting of homosexual practices in contexts where homosexuality is highly stigmatized and/or criminalized. Despite this finding, we adjusted the model for the sexual orientation variable to be in accordance with the literature.

Limitations

Firstly, the sample was not representative of the PLHIV population in each country as participants benefited from CBO services. Nevertheless, the goal of this study was to characterize the behaviour of PLHIV benefiting from CBO services.

Secondly, answers related to sexual practices may have been biased by the social desirability bias, which may lead to an exaggeration of the number of sexual partners by men and an under-reporting by women (Nnko, Boerma, Urassa, Mwaluko, & Zaba, 2004).

Thirdly, the cross-sectional design did not allow us to observe the changes in the sexual behaviour of PLHIV over time after diagnosis, or to study the impact of duration since diagnosis on sexual activity.

Conclusion

This international community-based study showed clear differences in sexual behaviour between men and women living with HIV. The latter were more likely to interrupt sexual activity and this decision was related to relationship issues and social support. For HIV-positive men, stopping sexual relations was more related to individual and representational issues surrounding the infection. This suggests the need for gender-based interventions regarding sexuality with HIV. Women could benefit from capacity building and support regarding adaptation, acceptance and serostatus disclosure. Interventions for men could focus on information and knowledge of the virus.

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