

Full Length Research Paper

HIV-positive status disclosure with stable sexual partner at Gabriel Touré University Hospital, Bamako, Mali, 2017

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Preventing new cases of HIV infection and mother-to-child HIV transmission requires knowledge of the factors associated with HIV-positive status disclosure with the sexual partner. Our objective was to determine the factors associated with HIV-positive status disclosure with the stable sexual partner at Gabriel Touré University Hospital, Mali. We conducted a cross-sectional study from February to March 2017 at Gabriel Touré University Hospital. We included PLWH 18 years of age and older, who were living with a stable sexual partner. We used a logistic regression to estimate OR for the identification of factors associated with HIV status disclosure. Prevalence of disclosure was 60.66%. Being married monogamously (OR 7; 95% CI [2.48-19.75]) or polygamously (OR 4.84; 95% CI [1.65-14.21]), being accompanied by the partner during the HIV testing process (OR 9.0; 95% CI [3.8-21.2]), being afraid of the partner's reaction (OR 0.24; 95% CI [0.1-0.5]) and trusting the partner (OR 7.2; 95% CI [3.8-13.7]), were factors independently associated with disclosure of HIV-positive status with the stable sexual partner. Couple testing should be introduced and unmarried people living with HIV (PLWH) who are afraid of their partners and those who do not trust their partners should be supported during the disclosure process.

Key words: HIV positive status, disclosure, Mali.

INTRODUCTION

Human immunodeficiency virus (HIV) is a global public health challenge. In 2017, about 36.9 million people were

living with HIV worldwide, including 1.8 million newly infected individuals. West and Central Africa had 6.1

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million people living with HIV (PLWH) and the region accounted for 21% of the world's new HIV infections and 30% of global deaths from Acquired Immune Deficiency Syndrome (AIDS) related illness. Mali had 130,000 PLWH, including 9,900 new infections (Joint United Nations Program on HIV/AIDS (UNAIDS), 2018).

The Joint United Nations Programme on HIV and AIDS (UNAIDS) is leading the global effort to end AIDS as a public health threat by 2030 as part of the Sustainable Development Goals (Joint United Nations Program on HIV/AIDS (UNAIDS), n.d.). To achieve this goal, HIV-positive status must be disclosed with the sexual partner. In the context of HIV/AIDS, disclosure refers to the act of informing any individual or organization, of the serostatus of an infected person, or it refers to the fact that such information has been transmitted, by any means, by the person him or herself, or by a third party, with or without consent (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2000). The main purpose of this disclosure to the sexual partner is to prevent them from getting HIV (Hardon et al., 2013). This has an impact on the occurrence of new HIV infections. Disclosure can lead to a reduction in the risk of HIV transmission to the partner by between 17.9 and 40.6% (Pinkerton and Galletly, 2007). However, it can lead to unexpected consequences for the infected person. Positive partner reactions have been described in studies. There were social support, partner screening, insurance for care and transport costs (Coalition Internationale Sida PLUS, 2013; Hardon et al., 2013; Kiweewa et al., 2015). However, negative reactions ranged from disbelief and denial, blaming the spouse for infidelity and bringing the disease into the family, to violence, separation and divorce (Coalition Internationale Sida PLUS, 2013; Hardon et al., 2013; Kiweewa et al., 2015; Shamu et al., 2014; Sow, 2013).

In the literature, there are many factors associated with HIV status disclosure. Marital status (Amaran, 2012; Yaya et al., 2015), age (Hardon et al., 2013; Kiula et al., 2013), having a child (Couterut et al., 2014), income level (Pannetier, 2011) and voluntary testing (Zola et al., 2014) have been associated with HIV status disclosure. The knowledge of someone who has disclosed his HIV status, being accompanied by a health worker and good adherence to ARV treatment (Cissé et al., 2016; Coalition Internationale Sida PLUS, 2013; Sow, 2013; Yaya et al., 2015) have been found in other studies. Trust and the likelihood of not being held responsible for HIV status have encouraged status disclosure (Couterut et al., 2014; Sow, 2013). The factors associated with disclosure of HIV status are not well known in Mali and furthermore disclosure of status is not effective, despite the law which sets the disclosure period at 6 weeks after the knowledge of one's HIV-positive status (Loi N° 06-028 Du 29 Juin 2006 Fixant Les Règles Relatives à La Prévention, à La Prise En Charge et Au Contrôle Du VIH/Sida, 2006). In Mali, a study done in 2011 revealed that the prevalence

of HIV-positive status disclosure with sexual partners was 73% (Cissé et al., 2016). The 27% who did not disclose their status would contribute to weathering the emergence of new HIV infection cases. The aforementioned study only took in account private structures. Thus, the prevalence of disclosure and the factors associated found in their study might not be the same as in public facilities where not all services are available.

Of those above, disclosure is a problem around the world, which when the factors associated with it are not well known and addressed can lead to the occurrence of new HIV infections. To our knowledge, neither the prevalence of disclosure nor the influencing factors are known in public HIV care structures in Mali, including the Gabriel Touré University Hospital Center, which is one of the largest centers. For instance, we conducted this study in Gabriel Touré, located in Bamako where the HIV prevalence among women and men were highest in Mali at 1.7 and 1.6% respectively (Cellule de Planification et de Statistiques (CPS/SSDSPF) et al., 2012). Our objective was to determine the prevalence and factors associated with HIV-positive status disclosure with the stable sexual partner at Gabriel Touré University Hospital in 2017.

MATERIALS AND METHODS

Type of study

We conducted a cross-sectional study from February to March, 2017 at the Gabriel Touré University Hospital (GT University Hospital).

Study setting and population

Our study took place at the Gabriel Touré University Hospital, located in the city center of Bamako in Commune III. It is made up of six departments: Pediatrics, Medicine, Surgery, Gynecobstetrics, Medical radiography, Anesthesia and emergency medicine. HIV care is provided by the department of medicine. The first case of HIV was detected by this department in 1985. Since then, HIV care has been organized there. Despite this day when HIV care became community-based, patients for fear of stigma prefer to stay in a university hospital for their therapeutic follow-up. The consultation is provided by resident doctors in training to become specialists in gastroenterology, in the department of medicine. They take care of pre-test, reporting of results, post-test and follow-up consultations. During these activities, physicians offered to disclose HIV status with all patients who were in a relationship or planned to become a couple in order to identify the partner. The delivery of ARVs is provided by a pharmacist who is also involved in accompanying patients for HIV status disclosure.

A PLWH association often intervenes in these routine activities to help certain PLWH in the disclosure process, so this association is frequented by some of them. According to the database, on February 3, 2017, there were 1550 PLWH followed at Gabriel Touré University Hospital. They were all on antiretroviral treatment. The database contained missing data according to the variables. Out of 1545, the average age was 40±10 years. Of 1550, 73% were

female. Of 1325, 67% were married. Of 1442, 76% were from Bamako. Our study population was people living with HIV and being taken care of at the medical department. We included people living with HIV who were 18 years of age and over, consulting in the medical department, who were living with a stable sexual partner and who agreed to participate in our study.

Sampling

Sample size calculated using the Schwartz formula, at risk $\alpha = 0.05$, an accuracy of 5% and assuming a prevalence of 50%, was 422 PLWH. To constitute our sample, we conducted a survey for convenience. We included each PLWH who had consulted and gave informed consent until they reached the necessary sample size.

Data collection

For data collection, we designed a structured questionnaire. The questionnaire contained 41 questions divided between 8 sections (General information, information on the interviewer, general information on the participants, socio-demographic characteristics, the HIV screening process and ARV treatment, disclosing of HIV positive status, relationship with health workers' staff, psychological state upon knowledge of positive HIV status). The variables included in the questionnaire were identified through a review of the literature and on the basis of our own experience in caring for PLWH. A pilot field phase allowed us to test and validate the questionnaire before beginning the actual collection phase of our study. The interviewers administered the questionnaire to patients who gave consent at the end of the consultation. The independent variables of interest were socio-demographic, clinical, therapeutic and psychological. The dependent variable was the HIV-positive status disclosure with stable sexual partners. In our study, we defined stable sexual partner as the person with whom an individual lives in a marriage, cohabitation and with whom he or she has sexual intercourse.

Data processing

The database was used to complete the information. The collected data were entered and cleaned using Epi Info version 7.2.0.1.

Statistical analyses

The data were analyzed using Epi Info 7. In descriptive analysis, quantitative data have been summarized in terms of mean and standard deviation. For the qualitative data the frequencies and proportions were calculated. Means were tested using the Student's T-test. A univariate regression was used to select variables with a p-value of 0.20 for inclusion in the initial multivariate analysis model. A multivariate analysis was performed to the adjusted OR (ORa) so that to identify the factors which were significantly associated with the HIV-positive status disclosure. We proceeded to a top-down logistic regression model by eliminating each time the factor that has the highest p-value until we obtained the final model where all the factors studied have a $p < 0.05$. For the interpretation of the association, the significance threshold retained was 0.05.

Ethical considerations

The Ministry of Health and Public Hygiene of Mali has been informed and they supported our work with a letter (number 2017-

0448/MSHP/SG/DNS). A letter of authorization (number 0066/HGT) was issued by the GT University Hospital to conduct the investigation in their structure. Participants were given the choice of whether or not to participate in our survey; their signatures were required to participate in our study. Personal data of the study participants were neither collected nor analyzed. PLWH who did not disclose their HIV status were encouraged and referred to the psychosocial workers of the associations.

RESULTS

General description of the participants

In total, we included 422 people living with HIV. Of these, 256 (60.66%) disclosed their HIV-positive status to their stable sexual partner. There was no significant difference between our sample and the study population in average age ($p=0.3974$) and residence ($p = 0.2213$). The majority of participants were female, married (monogamous and polygamous) both in our sample and in the study population. The proportions of female and married in our sample were more than in the study population (Table 1). On average there was no significant difference between the ages of those who disclosed and those who did not (40.35 vs 38.95, $p=0.144$). Male disclosed their status more than female without no significant difference (61.80% vs 60.36%, $p = 0.0608$).

Factors associated with HIV-positive status disclosure with the sexual partner in univariate analysis

In univariate analysis, being monogamously married ($p<0.001$) or polygamously ($p<0.001$) and having a partner for more than 2 years ($p<0.001$) were the socio-demographic factors strongly associated with HIV positive status disclosure with the stable sexual partner (Table 2). Being detected following a disease revealing HIV-positive status ($p=0.005$) and being encouraged by a health worker to disclose HIV status ($p<0.001$) were clinical factors strongly associated with disclosure (Table 3). Being accompanied by the partner during HIV testing process ($p < 0.001$), fear of the partner's reaction ($p < 0.001$), trust in the partner ($p < 0.001$) and feeling loved by the partner ($p < 0.001$) were the psychological factors associated with disclosure (Table 4).

Factors associated with HIV-positive status disclosure with the sexual partner in multivariate analysis

In multivariate analysis (Table 5), being monogamously married ($p = 0.001$) or polygamously ($p=0.002$), being accompanied by the partner during HIV testing process ($p < 0.001$), being encouraged by a health worker to disclose HIV status ($p = 0.008$), trusting the partner ($p <$

Table 1. Comparison of the sample with the study population, Gabriel Touré University Hospital, Bamako, February-March 2017.

Characteristic feature		Sample	Study population	p-value
		n (%)	n (%)	
Age	Mean	39.80±9.65	40.27±10.47	0.3974
	≥ 39	221 (51.2)	812 (42.6)	
Age range (year)	< 39	211 (48.8)	733 (47.4)	0.6068
	Total	422 (100)	1545 (100)	
Sex	Female	333 (78.9)	1125 (72.6)	0.0086
	Male	89 (21.1)	425 (27.4)	
	Total	422 (100)	1550 (100)	
Marital status	Not married	59 (14.0)	441 (33.3)	< 0.000
	Polygamous	137 (32.4)	275 (20.7)	
	Monogamous	226 (53.6)	609 (46.0)	
	Total	422 (100)	1325 (100)	
Residence	Bamako	332 (78.7)	1093 (75.8)	0.2213
	Outside Bamako	90 (21.3)	349 (24.2)	
	Total	422 (100)	1442 (100)	

Table 2. Sociodemographic factors associated with HIV-positive status disclosure with stable sexual partners in univariate analysis, Gabriel Touré University Hospital, Bamako, February-March 2017.

Characteristic feature	People who have disclosed their HIV positive status		OR [95% CI]	P-value	
	Yes	No			
Marital status	Not married	9	50	1	-
	Polygamous	85	52	9.1 [4.1-19.9]	< 0.001
	Monogamous	162	64	14.1 [6.5-30.3]	< 0.001
Duration of the partnership	≤ 2 years	21	45	1	< 0.001
	> 2 years	235	121	4.2 [2.4-7.3]	
Having a child	No	22	25	1	-
	Yes	234	141	1.9 [1.0-3.5]	0.039
Being in school	No	47	48	1	-
	Yes	209	118	1.3 [1.0-1.6]	0.011
Financial dependence on sexual partner ^[1]	Not at all	100	92	1	-
	Partial	109	56	1.8 [1.2-2.8]	0.008
	Total	47	18	2.4 [1.3-4.4]	0.004

¹Total: When all financial needs are supported by the partner (food, housing, clothing, health care); Partial: When only certain needs are supported by the partner (clothing, health care); -Not at all: No financial need is supported by the partner.

0.001) and feeling loved by the partner ($p < 0.033$) were factors strongly associated with HIV- positive status disclosure with the stable sexual partner.

DISCUSSION

Our findings indicate that the prevalence was 60.66%,

Table 3. Clinical and therapeutic factors associated with HIV-positive status disclosure with stable sexual partners in univariate analysis, Gabriel Touré University Hospital, Bamako, February-March 2017.

Factor		People who have disclosed their HIV positive status		OR [95% CI]	P-value
		Yes	No		
HIV detected as a result of illness	No	88	36	1	-
	Yes	168	130	0.5 [0.3-0.8]	0.005
Disclosure of HIV-positive status encouraged by health workers	Non	31	63	1	-
	Yes	225	103	4.4 [2.7-7.2]	<0.001
Duration of ARV treatment	≤1 year	18	18	1	-
	>1 year	238	148	1.6 [0.8-3.2]	0.171
Attendance of an association of PLWH	No	214	153	1	-
	Yes	42	13	2.3 [1.2-4.5]	0.011

Table 4. Psychological factors associated with HIV-positive status disclosure with stable sexual partners in univariate analysis, Gabriel Touré University Hospital, Bamako, February-March 2017.

Factor		People who have disclosed their HIV positive status		OR [95% CI]	P-value
		Yes	No		
Being accompanied by the partner for HIV testing	No	114	157	1	-
	Yes	142	9	21.7 [10.6-44.4]	<0.001
Fear of partner's reaction	No	161	32	1	-
	Yes	95	134	0.1 [0.1-0.2]	<0.001
Fear of separation	No	163	49	1	-
	Yes	93	117	0.2 [0.2-0.4]	<0.001
Fear of being accused of infidelity by the partner	No	174	54	1	-
	Yes	82	112	0.2 [0.2-0.4]	<0.001
Trust in the partner	No	33	115	1	-
	Yes	223	51	15.2 [9.3-24.9]	<0.001
Feeling loved by the partner	No	4	18	1	-
	Yes	252	148	7.7 [2.5-23.1]	<0.001
Feeling that the partner is the source of HIV infection	No	193	145	1	-
	Yes	63	21	2.3 [1.3-3.9]	<0.003

and independent associated factors were monogamous and polygamous marriage, HIV testing after illness, partner support in the testing process, disclosure encouraged by health worker, ARV treatment for more

than a year, fear of partner's reaction, trust in the partner, feeling loved by the partner and feeling that the partner is the source of HIV infection.

Our prevalence of disclosure was 60.66%, which is

Table 5. Factors associated with HIV-positive status disclosure with stable sexual partners in multivariate analysis, Gabriel Touré University Hospital, Bamako, February-March 2017.

Factor	Adjusted OR	95% CI	P-value
Married monogamous / not married	7.0	[2.5-19.8]	0.001
Married polygamous / not married	4.8	[1.7-14.2]	0.002
HIV detected as a result of illness	0.5	[0.2-0.97]	<0.042
Be accompanied by the partner for HIV testing	9.0	[3.8-21.2]	<0.001
Disclosure HIV status encouraged by health workers	3.6	[1.8-7.2]	0.008
Duration of ARV treatment greater than 1 year	3.4	[1.2-9.3]	<0.017
Fear of partner's reaction	0.2	[0.1-0.5]	<0.001
Trust in the partner	7.2	[3.8-13.7]	<0.001
Feeling loved by the partner	5.9	[1.2-30.8]	<0.033
Feeling that the partner is the source of HIV infection	3.4	[1.6-7.5]	0.001

lower than that of an earlier study done in 2011 in Mali, 73.5% (Cissé et al., 2016). This could be explained by the improved organization of the structures where this study took place. These are private centers, where patients are cared for by socio-sanitary staff recruited, paid and dedicated to the care of PLWH. Also, in Kenya, Uganda, Burkina Faso (Hardon et al., 2013), Ecuador and Romania (Coalition Internationale Sida PLUS, 2013), the prevalence was higher than that of Mali. Other studies have found prevalence comparable to ours. In Congo (Zola et al., 2014), Togo (Yaya et al., 2015) and Morocco (Coalition Internationale Sida PLUS, 2013), it was 62, 60.9 and 60% respectively. In Malawi (Hardon et al., 2013), Senegal (Couterut et al., 2014), Uganda (Kiweewa et al., 2015), Côte d'Ivoire (Brou et al., 2007) and Tanzania (Kiula et al., 2013), among pregnant women for the prevention of mother-to-child transmission of HIV, as well as in China (Qiao et al., 2016), prevalence was lower than the ours. The 39.34% who have not yet disclosed their status could constitute a nest for the spread of HIV infection through sexual contact. We referred them to PLWH associations for support during disclosure.

Being monogamously and polygamously married was positively associated with HIV-positive status disclosure with the stable sexual partner. Many studies support this claim. In Nigeria, Senegal and Côte d'Ivoire, monogamy has encouraged disclosure (Amaran, 2012; Brou et al., 2007; Sow, 2013). Being married or in a couple has been positively associated with disclosure in Togo, Nigeria, Democratic Republic of Congo (DRC) and Thailand (Adebayo et al., 2014; Pannetier, 2011; Yaya et al., 2015). However, in Senegal, polygamy was implicated in the non-participation of HIV-positive status in a qualitative study (Sow, 2013).

Being diagnosed with an illness has been negatively associated with HIV-positive status disclosure with the stable sexual partner. The presence of symptoms

requiring treatment during HIV testing was negatively associated with disclosed status with the partner in a multicenter study (Hardon et al., 2013). On the other hand, being tested for HIV after the onset of symptoms has favored disclosure in the DRC (Zola et al., 2014). Being encouraged by health workers was positively associated with HIV-positive status disclosure. Nonetheless, some patients strongly encouraged and supported by health workers agreed to disclose (Sow, 2013). Being on ARV treatment for more than a year was positively associated with HIV-positive status disclosure with the sexual partner. This could be explained by the persistence of health workers to reintroduce advice on disclosure during each contact with patients. Being accompanied by the sexual partner in the HIV testing process was positively associated with HIV-positive status disclosure with the partner. Accompaniment before screening (Amaran, 2012) and HIV screening discussions with the partner before doing it led to disclosure (Kiula et al., 2013). Fear of the partner's reaction was negatively associated with disclosure. Disclosure information on HIV status is dreaded, especially for rejection behaviors, avoidance or exclusion that it is likely to create (Sow, 2013). Studies have indeed found adverse consequences followed by disclosure. Disclosure has been accompanied by violence in Zimbabwe (Shamu et al., 2014). In Uganda, 22% of women reported negative outcomes (neglect, separation from their partner and loss of financial support) following disclosure with their sexual partner (Kiweewa et al., 2015). In Côte d'Ivoire, blame and separation was followed by disclosure with the partner (Brou et al., 2007). Trusting the partner has been positively associated with HIV-positive status disclosure. In Senegal, trust also emerged as a disclosure factor (Sow, 2013). Feeling loved by the partner was positively associated with HIV-positive status disclosure with the stable sexual partner. Feeling that the partner was the source of HIV infection was associated with HIV-positive

status disclosure with the stable sexual partner. Socially in Mali, HIV infection was often placed as part of God's punishment of sexual infidels, a source of stigma and social exclusion, so patients tend to seek arguments to exonerate them. Consequently, these patients who incriminate the partner as the source of their pain, disclose to justify their status by the positivity of the partner's serology in order to be clean in the eyes of the partner and society. Knowing that the partner is positive (Yaya et al., 2015), knowing the partner's status (Kiula et al., 2013) and the probability of not being able to be held responsible for HIV status led to disclosure (Sow, 2013).

We must recognize certain limits to our study. In our study, evidence of HIV-positive status disclosure with the partner was not verified. It was based only on the participants' statements. We have taken into account the possible occurrence of certain biases in the interpretation of our results.

Selection bias

There was no refusal to participate in our investigation. So the non-respondents could not cause this type of bias. However, we recruited a higher proportion of women (78.9%) than the target population (72.6%). This may have underestimated the prevalence of disclosure, men (61.8%) having disclosed their status more than women (60.4%). Also, our sample had more married than the target population in terms of proportion, this could lead to an overestimation of the prevalence of disclosure.

Classification bias

Fear of PLWH to be accused of not disclosing could lead them to conceal the reality of their disclosing, thus leading to classification bias, which could overestimate the prevalence of disclosing.

Memory bias

The factor "duration of ARV treatment greater than 1 year" could lead to this type of bias. To minimize these biases, we recruited staff already involved in HIV care at the GT University Hospital as investigators, to whom patients confide easily. We made sure that these investigators had no idea, neither on the disclosing of the status of the participants, nor on the distribution of the factors to be tested among our participants. The investigators were trained and supervised in the task throughout the collection period. Questionnaires were administered discreetly between an interviewer and a participant at the same time in another office different from that of the consultation. Finally, the duration of ARV treatment was adjusted by reviewing the patient files.

Conclusion

Our study identified factors independently associated with HIV-positive status disclosure with stable sexual partners at the Gabriel Touré University Hospital. The main factors were being monogamously married or polygamously, being accompanied by the partner during HIV testing process, being encouraged by a health worker to disclose HIV status, trusting the partner and feeling loved by the partner. These factors should be considered in the fight against HIV at the GT University Hospital and in all PLWH care facilities where patients' characteristics are similar to ours.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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