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Domestic violence and prevention of mother-to-child transmission of HIV-1

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Abstract

Objectives—To determine the prevalence of life-time domestic violence by the current partner before HIV-1 testing, its impact on the uptake of prevention of mother-to-child transmission (PMTCT) interventions and frequency after testing.

Design—A prospective cohort.

Methods—Antenatally, women and their partners were interviewed regarding physical, financial, and psychological abuse by the male partner before HIV-1 testing and 2 weeks after receiving results.

Results—Before testing, 804 of 2836 women (28%) reported previous domestic violence, which tended to be associated with increased odds of HIV-1 infection [univariate odds ratio (OR) 1.7, 95% confidence interval (CI) 1.3–2.2; $P < 0.0001$, adjusted OR 1.2, 95% CI 0.9–1.6; $P = 0.1$], decreased odds of coming with partners for counseling (adjusted OR 0.7, 95% CI 0.5–1.0; $P = 0.04$), and decreased odds of partner notification (adjusted OR 0.7, 95% CI 0.5–1.1; $P = 0.09$). Previous domestic violence was not associated with a reduced uptake of HIV-1 counseling, HIV-1 testing, or nevirapine. After receiving results, 15 out of 1638 women (0.9%) reported domestic violence. After notifying partners of results, the odds of HIV-1-seropositive women reporting domestic violence were 4.8 times those of HIV-1-seronegative women (95% CI 1.4–16; $P = 0.01$). Compared with women, men reported similar or more male-perpetrated domestic violence, suggesting a cultural acceptability of violence.

Conclusion—Domestic violence before testing may limit partner involvement in PMTCT. Although infrequent, immediate post-test domestic violence is more common among HIV-1-infected than uninfected women. Domestic violence prevention programmes need to be integrated into PMTCT, particularly for HIV-1-seropositive women.

Keywords

Adverse effects; Africa; domestic violence; HIV; vertical transmission; prevention of mother-to-child transmission

Introduction

The abuse of women by their male partners is common in many regions where women are tested for HIV-1 in prevention of mother-to-child HIV-1 transmission (PMTCT) programmes [1]. In these settings, HIV-1 testing may place women at risk of domestic violence, and fear of domestic violence (physical, financial, or psychological abuse) may make it difficult for women to access interventions to prevent mother-to-child transmission of HIV-1. There is therefore a need to understand how domestic violence interacts with PMTCT programmes.

There is increasing evidence from studies in sub-Saharan Africa linking physical abuse by intimate partners to HIV infection among women [2–4]. However, the reasons for this association are not well understood.

Studies on domestic violence after HIV-1 testing in sub-Saharan Africa, have not consistently found an association between HIV-1 test results and domestic violence. Among HIV-1-positive women after testing some studies have reported high rates of domestic violence, divorce, or separation, 6% in 2 years in one study, and 7% in 14 weeks in another [5,6]. However, other studies have not found that partner notification of positive HIV-1 results increases the risk of post-test domestic violence, with less than 5% of HIV-1-positive women reporting domestic violence, divorce, or separation after testing in one year of follow-up [7,8]. Those studies have been limited by a lack of baseline data on domestic violence before testing, low rates of notifying partners of positive HIV-1 results, and a lack of documentation of the reasons for conflict.

We interviewed and followed participants in a study on couple HIV-1 counseling and testing in an antenatal clinic, to determine the prevalence of domestic violence before and after HIV-1 testing, and the impact of domestic violence on the uptake of interventions to prevent perinatal HIV-1 transmission [12].

Methods

Study population and clinic procedures

Mathare North City Council clinic, where this study was conducted, is a public antenatal clinic that serves a low socioeconomic population in Nairobi, Kenya. The recruitment and follow-up procedures have been described elsewhere [12]. Briefly, at the first antenatal clinic visit, women in groups of five to 10 were given health education and invited to participate. Baseline data on sociodemographic characteristics, relationship with current partner, living conditions, and domestic violence by the current partner were collected. Women were asked to return, at their convenience, for counseling and HIV-1 testing, either alone or with their partners. Similar information was obtained from consenting men who presented for counseling. After HIV-1 testing, women were asked to return to the clinic after 2 weeks for further counseling. At this 2-week post-test visit, nevirapine to prevent mother-to-child transmission of HIV-1 was dispensed to HIV-1-positive women, and all women completed a questionnaire on interim domestic violence.

Domestic violence included physical, financial, or psychological abuse by the current male partner. Physical abuse was defined as being physically assaulted, hit, slapped, or pushed. Psychological abuse was defined as the use of abusive language, yelling, humiliation, or actions intended to cause emotional pain. Intentional withholding of financial support or being forbidden to earn were considered financial abuse. To ensure confidentiality and promote confidence of clients, women saw the same counselor at each visit to the clinic, and questionnaires were administered to men and women separately in private rooms. The study was performed in accordance with the World Health Organization recommendations on ethics and safety for research on violence against women [13].

Statistical analyses

Data were analysed using SPSS-PC (Chicago, Illinois, USA) version 11.5. Chi-square and Wilcoxon rank sum tests were used to compare categorical and continuous independent data, respectively. McNemar's test was used for paired categorical data. Multivariate logistic regression was used to determine whether domestic violence at baseline was an independent predictor of HIV-1 infection, the uptake of PMTCT interventions, partner involvement in PMTCT, partner notification of HIV-1 test results, and domestic violence after receiving HIV-1 test results.

Results

Recruitment and follow-up

Of 3137 women invited to join the study, 2836 (90%) were enrolled, 2231 (71%) were counseled and 313 (10%) came for counseling with their male partners. After counseling, 2104 women (94%) and 301 men (96%) accepted HIV-1 testing. Among those tested, 314 women (15%) and 32 men (11%) tested HIV-1 positive. Two weeks after receiving HIV-1 test results, 1640 women completed the study; 58% of enrolled and 78% of tested women (Fig. 1). Compared with the 1640 women who completed the study, the 441 women lost to follow-up after receiving HIV-1 test results were more likely to be HIV-1 positive (21 versus 13%; $P < 0.001$), and to have reported domestic violence at baseline (32 versus 26%; $P = 0.02$).

Domestic violence before testing

At baseline, 804 of 2836 enrolled women (28%) reported having experienced at least one episode of domestic violence by their current partner; 570 (20%) reported physical abuse, 429 (15%) reported psychological abuse and 217 (8%) reported financial abuse. The prevalence of domestic violence by the current partner increased with the duration of the relationship, from 13% among women in a relationship for less than one year to 43% among women in a relationship for at least 5 years. Among the 570 women reporting physical abuse, the last episode was precipitated by disagreements caused by suspected infidelity by the male partner (27%), finances (23%), pregnancy (11%), alcohol or drug use (11%), care of children (9%), and disrespect by the wife (9%).

In a multivariate logistic regression model, after adjusting for the duration of the relationship, a history of a sexually transmitted disease, polygamous marriage, and living in a house with more than three people were associated with domestic violence. Using the same model, women with post-secondary school education, whose sexual debut was after age 17 years, whose partners had post-secondary school education, who were in formalized marriages, and who were paying a house rent of more than US\$20 per month had significantly lower odds of reporting having experienced domestic violence (Table 1).

HIV-1 test results and partner involvement

Women who tested HIV-1 positive were significantly more likely to have experienced domestic violence before testing than women who tested HIV-1 negative (37 versus 26%; $P < 0.001$). This difference persisted as a trend after adjusting for the number of lifetime sexual partners, age of sexual debut, polygamous marriage and number of people in the household. Partners of women who reported domestic violence were less likely to come for counseling than partners of women who did not report domestic violence (8.3 versus 12%; $P = 0.005$). This difference remained significant after adjusting for education level and the duration of the relationship. Two weeks after HIV-1 testing 1486 of 1638 women (91%) reported that they had informed their partners of their HIV-1 test results. Compared with those who did not notify their partners, women who notified their male partners of their HIV-1 test results were significantly less likely to have reported domestic violence at baseline (38 versus 25%; $P = 0.001$; Table 2).

Uptake of prevention of mother-to-child transmission interventions

The proportion of women reporting domestic violence before testing was slightly lower among women who received HIV-1 test counseling than among those who did not (28 versus 31%; $P = 0.1$) and among women who received compared with those who did not receive HIV-1 test results (28 versus 31%; $P = 0.1$) and was comparable among women who accepted HIV-1 testing and those who declined (28 versus 30%; $P = 0.2$; Table 3).

Two weeks after receiving HIV-1 test results, of 967 women who reported having sex, 334 (35%) reported using condoms at least once. Women who used condoms tended to be less likely to have reported domestic violence at baseline (21 versus 27%; $P = 0.06$). This trend remained after adjusting for HIV-1 test results [odds ratio (OR) 0.7, 95% confidence interval (CI) 0.5–1.0; $P = 0.06$]. There was no difference in the prevalence of reported domestic violence at baseline between women who accessed nevirapine and those who did not (39 versus 36%; $P = 0.6$; Table 3).

Domestic violence after HIV testing

In the 2 weeks after HIV-1 testing, domestic violence was reported by 15 of 1638 women (0.9%): 10 reported financial abuse, 10 psychological abuse, and five physical abuse. Six of the women (40%) reporting abuse said it was related to HIV-1 testing, five (33%) said it was caused by financial disagreement, four (27%) said it was caused by suspected infidelity by the male partner, and five (33%) gave other reasons.

Women who experienced domestic violence after testing tended to be more likely to have reported domestic violence before testing compared with women who did not experience domestic violence after testing (47 versus 26%; $P = 0.08$). Testing HIV-1 positive was a predictor of experiencing domestic violence after HIV-1 testing that was independent of having reported abuse before testing (OR 4.0, 95% CI 1.4–12; $P = 0.009$). After adjusting for a history of domestic violence at baseline and partner notification, the odds of HIV-1-seropositive women experiencing domestic violence were five times those of HIV-1-seronegative women (OR 4.8, 95% CI 1.4–16; $P = 0.01$; Table 4).

Domestic violence reports by male partners

Of 2836 women enrolled, 313 (11%) had their partners come for counseling. Among the 313 couples, the proportion of male partners and women reporting domestic violence during the relationship was similar (23 versus 21%; $P = 0.6$). Men were more likely to report that they physically abused their partner than women reported being abused (19 versus 14%; $P = 0.04$), but were less likely to report that the abuse led to physical injuries than their female partners (1 versus 3%; $P = 0.04$). The frequency of reasons reported for the last episode of

physical abuse were similar for men and women: unfaithfulness by the man (6% of women versus 4% of men; $P=0.1$), misunderstanding over money (2% of women versus 5% of men; $P=0.1$), disagreement over relatives (2% of women versus 1% of men; $P=0.5$), pregnancy (2% of women versus 1% of men; $P=1.0$), drunkenness (1% of women versus 1% of men; $P=1.0$), and misunderstanding over care of children (0% of women versus 2% of men).

Discussion

Our findings confirm those of previous studies that domestic violence is associated with HIV infection [3,4]. Our finding that male partner behavior placing women at risk of HIV-1 infection, such as infidelity and having multiple partners, is a source of conflict may partly explain this association. This finding also suggests that interventions to prevent domestic violence that target reasons for conflict may have an additional benefit of preventing HIV-1 infection.

Previous studies have found fear of domestic violence to be a reason for women refusing HIV-1 testing and failing to notify partners of HIV-1 test results [9–11]. In our study, domestic violence before testing did not compromise the uptake of HIV-1 testing or other PMTCT interventions, but it was a barrier to bringing male partners for counseling, notifying partners of results, and using condoms. Therefore, domestic violence may limit the effectiveness of interventions that require male partner participation such as couple counseling and using PMTCT as an entry point for the prevention of the heterosexual transmission of HIV-1. There is a need for research to identify other strategies to reach partners of women who experience domestic violence.

In this study, the frequency of reported domestic violence in the immediate period after HIV-1 testing was low, which is consistent with other studies from sub-Saharan Africa that find that domestic violence after testing is infrequent [7,8]. However, positive HIV-1 test results appear to increase this risk, by acting as a new source of conflict after testing. To address this increased risk of domestic violence among HIV-1-seropositive women after testing, domestic violence prevention and screening needs to be integrated into programmes that provide HIV/AIDS care.

This study was unique in that we collected data on domestic violence before testing and obtained data on domestic violence directly from some male partners. Our findings suggest that domestic violence after testing is part of a continuing pattern of abuse that may be acceptable to men in the cultural context in which this study was performed, unless it leads to injury. Interventions to prevent domestic violence that target men in this setting will have to be culturally sensitive and take into account that physical abuse may only be stigmatized when it leads to injury.

Our study has some limitations. We probably underestimated the frequency of abuse after testing because of the high rate of loss to follow-up, particularly among HIV-1-positive women and women who had reported domestic violence at baseline. As a result of the short follow-up period (2 weeks) we observed few domestic violence events after testing. Although domestic violence that is related to HIV-1 testing is expected to occur soon after notifying partners of test results, it is possible that domestic violence related to HIV-1 testing will persist for a long time after the diagnosis of HIV-1.

In conclusion, our study findings show that although after notifying partners of test results many women do not experience domestic violence in the immediate post-HIV-1 test period, there is an increased risk of domestic violence after women notify partners of HIV-1-positive results. We also found that domestic violence does not limit the uptake of PMTCT

interventions, but does limit partner involvement, which is important for the prevention of the heterosexual transmission of HIV-1. There is a need for innovative long-term approaches both to prevent domestic violence and to integrate domestic violence prevention into HIV-1 prevention programmes.

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Fig. 1.
Recruitment and follow-up.

Table 1

Characteristics associated with domestic violence at baseline.

	No. reporting domestic violence/no. at risk	%	Unadjusted <i>P</i> value	Adjusted OR (95% CI)	<i>P</i> value ^a
Women characteristics					
Age 20 years	696/2379	29	0.02	0.9 (0.7–1.1)	0.2
Age < 20 years	108/454	24		1	
> Secondary education	11/127	9	< 0.001	0.3 (0.1–0.4)	< 0.001
Secondary education	795/2708	29		1	
Age at first sex 17 years	454/1875	24	< 0.001	0.6 (0.5–0.7)	< 0.001
Age at first sex < 17 years	353/959	37		1	
Ever had an STD	124/263	47	< 0.001	2.4 (1.8–3.2)	< 0.001
No history of STD	682/2570	27		1	
Age 25 years	547/1893	29	0.003	1.0 (0.8–1.3)	0.9
Age < 25 years	93/426	22		1	
Secondary education	72/362	20	< 0.001	0.6 (0.5–0.8)	0.001
< Secondary education	680/2309	29		1	
Employed	767/2733	28	0.04	1.1 (1.0–1.2)	0.2
Not employed	31/80	39		1	
Relationship factors					
Formalized marriage	373/1540	24	< 0.001	0.6 (0.5–0.7)	< 0.001
Marriage not formalized	350/1032	34		1	
Polygamous marriage	79/183	43	< 0.001	2.1 (1.5–2.8)	< 0.001
Monogamous marriage	639/2377	27		1	
Relationship < 1 year	89/693	13	< 0.001		
Relationship 1 to < 3 years	197/785	25			
Relationship 3 to < 5 years	156/507	20			
Relationship 5 years	365/851	43			
Relationship < 2 years					
Environmental characteristics					
Live with > 3 people in house	357/874	41	< 0.001	1.8 (1.5–1.7)	< 0.001
Live with 3 people in house	449/1959	23		1	

	No. reporting domestic violence/no. at risk	%	Unadjusted <i>P</i> value	Adjusted OR (95% CI)	<i>P</i> value ^a
House rent > US\$20/month	433/1724	25	< 0.001	0.6 (0.5–0.8)	< 0.001
House rent US\$20/month	337/972	35		1	

CI, Confidence interval; OR, odds ratio.

^aAdjusted for duration of relationship.

Table 2

Correlates of HIV-1 infection, partner coming for counseling and notifying partner of test results.

Variable	Univariate		Multivariate	
	No. positive/no. tested	%	OR (95% CI)	P value
HIV-1 infection				
Reported domestic violence at baseline	117/586	20	1.2 (0.9–1.6)	0.1
No reported domestic violence at baseline	197/1519	13	1	
> 2 sexual partners in lifetime	135/675	20	1.5 (1.2–2.0)	0.002
2 sexual partners in lifetime	179/1428	13	1	
Sexual debut at > 17 years	181/1411	13	0.7 (0.6–0.9)	0.001
Sexual debut at 17 years	133/692	19	1	
Polygamous marriage	42/136	31	2.5 (1.7–3.7)	<0.001
Monogamous marriage	249/1777	14	1	
Living in house with > 3 people	120/640	19	1.5 (1.1–1.9)	0.004
Living in house with 3 people	194/1463	13	1	
Partner came for HIV-1 counseling				
Reported domestic violence at baseline	67/807	8	0.7 (0.5–1.0)	0.03
No reported domestic violence at baseline	246/2029	12	1	
More than secondary education	25/127	20	1.9 (1.2–3.0)	0.006
Secondary education or less	288/2708	11	1	
Relationship with current partner 2 years	163/1686	10	0.8 (0.6–1.0)	0.03
Relationship with current partner < 2 years	150/1150	13	1	
Reported notification of HIV-1 test results to partner				
Reported domestic violence at baseline	376/434	87	0.7 (0.5–1.1)	0.09
No reported domestic violence at baseline	1112/1206	92		
Married	1404/1498	94	21 (13–35)	<0.001
Not married	82/140	59		
Supported financially by partner ^a	1451/1570	92	–	–
Not supported financially by partner	34/66	52	–	
HIV-1-positive test results	138/217	64	0.05 (0.03–0.08)	<0.001

Variable	No. positive/no. tested	Univariate		Multivariate	
		%	P value	OR (95% CI)	P value
HIV-1 infection					
HIV-1-negative test results	1340/1412	95			

CI, Confidence interval;OR, odds ratio.

^aSupported financially by partner was excluded from the multivariate model as it was highly correlated with marriage.

Table 3

Domestic violence before testing and uptake of prevention of mother-to-child transmission interventions.

Variable	Univariate		Multivariate	
	No. counseled/no. enrolled	%	OR (95% CI)	P value
Uptake of HIV-1 counseling				
Reported domestic violence at baseline	620/807	77	0.1	0.8 (0.7–1.1)
No reported domestic violence at baseline	1611/2029	79		0.2
Married	2027/2560	79	0.03	1.4 (1.0–1.8)
Not married	201/273	74		0.04
Formalized marriage ^a	1248/1540	81	0.02	
Non-formalized marriage	784/1032	76		
Uptake of HIV-1 testing after counseling	Tested/counseled	%	P value	OR (95% CI)
Reported domestic violence at baseline	585/620	94	1	
No reported domestic violence at baseline	1520/1611	94		
History of sexually transmitted disease	207/219	95	0.9	
No history of sexually transmitted disease	1896/2010	94		
Received HIV-1 test results	Received results/tested	%	P value	OR (95% CI)
Reported domestic violence at baseline	576/586	98	0.09	
No reported domestic violence at baseline	1507/1520	99		
History of sexually transmitted disease	206/207	100	0.4	
No history of sexually transmitted disease	1875/1897	99		
Used condoms after receiving HIV-1 test results	Used condoms/had sex after testing	%	P value	OR (95% CI)
Reported domestic violence at baseline	70/237	30	0.06	0.7 (0.5–1.0)
No reported domestic violence at baseline	264/728	36		0.06
HIV-positive test results	52/110	47	0.003	1.9 (1.2–2.8)
HIV-negative test results	279/846	33		0.003
Receipt of nevirapine by HIV-1-positive women	Received nevirapine/HIV-1 positive	%	P value	OR (95% CI)
Reported domestic violence at baseline	77/116	66	0.6	

Variable	No. counseled/no. enrolled	Univariate		Multivariate	
		%	P value	OR (95% CI)	P value
Uptake of HIV-1 counseling					
No reported domestic violence at baseline	123/194	63			

CI, Confidence interval;OR, odds ratio.

^aFormalized marriage was excluded from the multivariate model as it was highly correlated with marriage.

Table 4

Domestic violence after HIV-1 testing.

	No. Reported domestic violence after testing/no. at risk	Univariate		Multivariate	
		%	P value	OR 95% CI	P value
All women					
Reported domestic violence before testing	7/434	1.6	0.06	2.5 (0.9–7.1)	0.1
No reported domestic violence before testing	7/1206	0.6			
HIV-1 positive	6/217	2.8	0.006	4.5 (1.5–13)	0.006
HIV-1 negative	8/1412	0.6			
Counseled as a couple	4/278	1.4	0.3		
Not counseled as a couple	10/1362	0.7			
Women who notified partners of results					
HIV-1 positive	4/138	2.9	0.01 ^a	4.8 (1.4–16)	0.01
HIV-1 negative	7/1340	0.5			
Reported domestic violence before testing	4/376	1.0	0.5 ^a	1.3 (0.4–4.6)	0.6
No reported domestic violence before testing	7/1112	0.6			

CI, Confidence interval; OR, odds ratio.

^aFisher's exact test used.