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Women in couples antenatal HIV counseling and testing are not more likely to report adverse social events

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Abstract

Background: Couple counseling has been promoted as a strategy to improve uptake of interventions to prevent mother-to-child HIV transmission (pMTCT) and to minimize adverse social outcomes associated with disclosure of HIV status.

Objectives: We tested whether women counseled antenatally as part of a couple were more likely to accept HIV testing and nevirapine in a pMTCT program, and whether they would be less likely to experience later adverse social events than women counseled alone.

Methods: A pMTCT program that included active community education and outreach to encourage couple counseling and testing was implemented in two antenatal clinics in Lusaka, Zambia. A subset of HIV-positive women was asked to report their experience of adverse social events 6 months after delivery. Couple-counseled women were compared with individual-counseled women stratified by whether or not they had disclosed their HIV status to their partners.

Results: Nine percent (868) of 9409 women counseled antenatally were counseled with their husband. Couple-counseled women were more likely to accept HIV testing (96%) than women counseled alone (79%); however uptake of nevirapine was not improved. Six months after delivery, 28% of 324 HIV-positive women reported at least one adverse social event (including physical violence, verbal abuse, divorce or separation). There were no significant differences in reported adverse social events between couple- and individual-counseled women.

Conclusions: Couple counseling did not increase the risk of adverse social events associated with HIV disclosure. Support services and interventions to improve social situations for people living with HIV need to be further evaluated.

Keywords

HIV/AIDS; prevention of mother-to-child transmission; voluntary counseling and testing; couples

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Introduction

Antenatal voluntary counseling and testing (VCT) is a central component of programs to prevent mother-to-child transmission of HIV (pMTCT). VCT programs have additional benefits such as providing the opportunity to counsel women about safer sex options and refer them to treatment as this becomes more widely available. VCT programs implemented outside of pMTCT have identified advantages in counseling couples rather than individuals. Couples counseling has been shown to be more successful in promoting behavior change [1], facilitating communication between couples [2] and decreasing HIV transmission [3]. In practice, it is often difficult to encourage individuals to participate in couples counselling [4–7]; however, some programs have improved participation rates through integrated approaches and community outreach [8–10]. Although widely promoted, couples counselling, both within antenatal care services and within pMTCT programs in particular, is infrequently offered and poorly studied [11].

Disclosure of HIV status among HIV-positive women results in improved adherence to pMTCT antiretroviral regimens [12]. However, disclosure of HIV status has also been associated with increases in adverse social outcomes, including violence, abandonment and divorce [13,14]. Male partner involvement in VCT may increase the likelihood of VCT uptake, behavior change, as well as improve compliance with pMTCT measures such as nevirapine (NVP) uptake. Alternatively, it is possible that male involvement may lead to increased levels of violence against women in regions where the background level of violence is already high [15]. Little published information is available that examines the role of couples counseling in an antenatal setting with pMTCT uptake and social adverse events. The rapid expansion of pMTCT programs in low-resource settings makes it important to evaluate strategies to improve the effectiveness of pMTCT interventions while minimizing the potential risks to women.

We investigate here whether a woman's acceptance of HIV testing and compliance with NVP in a pMTCT program were influenced by whether she was counseled alone or as part of a couple. We examined the association of couple counseling and adverse social events 6 months after counseling.

Methods

Study setting

The Zambia Exclusive Breastfeeding Study (ZEBS) is a prospective cohort study to determine if mode of breastfeeding affects postnatal transmission of HIV. In these two high-volume antenatal care clinics, located in socio-economically-disadvantaged, high-density urban communities of Lusaka, all women are offered HIV VCT and NVP.

Voluntary counseling and testing and couples counseling

As part of routine antenatal care, all women presenting for antenatal care services were invited to attend a group education session about HIV and pMTCT. Women were individually counseled by a trained counselor, offered HIV testing and provided with their HIV test results within 2 h by the on-site use of two rapid HIV tests [Abbott Determine HIV-1/2 test (Abbott Laboratories, Tokyo, Japan) and Trinity Capillus (Trinity Biotech, Wicklow, Ireland)]. Discordant results were resolved by Western blot. Maternal NVP (Boehringer Ingelheim, Ridgefield, Connecticut, USA) was offered to all HIV-positive women during post-test counseling to be taken at the onset of labor and the infant dose was given at birth in the Labor & Delivery Ward. All women were screened for syphilis using rapid plasma reagent (RPR) tests.

Antenatal HIV testing was promoted by community outreach and education, including talks and drama presentations at markets, workplaces, churches, community centers, football matches, and within community health awareness campaigns. Publicly-disclosed persons living with HIV/AIDS participated in these efforts to underscore the messages. Male outreach workers played a prominent role, and couple counseling was specifically emphasized. Many of the outreach activities targeted venues with a high concentration of men, including men's church groups, workplaces, taverns and sporting events. Saturday clinics provided a more appropriate atmosphere for participation by men and access to counseling without missing work.

Zambia Exclusive Breastfeeding Study

Study details are described elsewhere [16]. In brief, HIV-positive women identified through VCT services were offered enrollment. The CD4 cell count was determined at baseline (FacsCount; Becton Dickinson, San Jose, California, USA), along with standard demographic information and HIV-related symptoms and illnesses, which were classified according to the WHO Staging System of HIV Infection and Disease [17]. Participants were asked about disclosure of their HIV status at baseline and at a follow-up visit conducted 6 months after delivery, when participants were also asked if they had experienced specific adverse social outcomes since joining the study. These self-reported events include divorce or separation, physical violence from their husband, verbal abuse from their husband, being forced to leave their home, violence from others, and threats or intimidation.

The study was approved by the Institutional Review Boards of Boston University, Columbia University, University of Southern California, and the University of Zambia. All participants provided written informed consent.

Statistical analysis

The first component of the analysis was restricted to all women (with or without their partners) who attended the antenatal clinics and were seen by a counselor from the start of the program in April 2001 up to the end of February 2003. After that period, resources to expand the pMTCT program were available and program implementation changed. For the purpose of analysis, we defined 'couple counseling' as all occasions where a male partner of a woman attending the antenatal clinic also received HIV counseling. This included women who were counseled individually and then again with their partner, and those who were counseled as a couple initially. Demographic and HIV testing characteristics were compared between couple- and individual-counseled women.

The second component of the analysis was restricted to women from the first analysis enrolled in ZEBS who had completed their 6-month visit by mid-July 2003 (time of analysis). These women were stratified into three groups based on whether: (1) they had received their original antenatal counseling as part of a couple (and by definition had disclosed their status to their partner); (2) they were counseled individually and had voluntarily disclosed their status to their husband/partner by 6 months postpartum; and (3) were counseled individually and had *not* disclosed their status to their husband/partner by 6 months postpartum. Adverse social events occurring 6 months after delivery were compared between these three groups.

All categorical variables were compared with χ^2 tests; continuous variables were tested with t-tests. Groups were stratified by other covariates to investigate possible confounding. If any expected cell size was less than 5, the Fisher Exact test was utilized. A *P*-value of less than 0.05 was considered statistically significant. Analyses were completed using SAS, version 8 (SAS Institute, Cary, North Carolina, USA).

Results

Counseling of individual women and couples in the antenatal clinic

Over 22 months from April 2001, 9409 women at the two antenatal clinics were counseled about HIV testing and pMTCT. The spouses of 868 (9.2%) of these women were also counseled. Couple-counseled women were not different by age, parity, or education from women attending alone (Table 1).

Among women counseled as a couple, 96% agreed to HIV testing compared with 79% of women counseled alone ($P < 0.001$) and 92% of the men accepted HIV testing. HIV prevalence was higher among women counseled as part of a couple (37.6%) compared with women counseled alone (27.4%) ($P < 0.0001$) (Table 1). Of consenting women in couples with only one counseling session, 125 of 417 (29.9%) were HIV-positive. This was not different from 1795 of 6541 (27.4%) individual women who had one counseling session ($P = 0.26$). However, among the women who were counseled on more than one occasion and at least once with their partner, 188 of 416 (45.2%) of those consenting were found to be HIV-positive. Virtually all couple-counseled and individual-counseled women received their test results the same day (99.4 versus 98.7%; $P = 0.08$). RPR reactivity was found among 9% of women tested overall and a significantly higher proportion among women who were counseled as a couple (Table 1). Dual reactivity to HIV and RPR tests was present in 83 (10.2%) of the women in couples and in 241 (3.7%) of women tested individually ($P < 0.0001$).

Being counseled as part of a couple was not associated with increased acceptance of NVP for pMTCT. Whether couple or individually counseled, only two-thirds of HIV-positive women accepted the NVP tablet at the time of testing ($P = 0.22$); 706 (32.9%) women said they would return for it later, and only 55 (2.6%) refused it. The number of women who did return for their NVP was not recorded, so the uptake cited here is probably an underestimate.

For the 794 couples in which both partners agreed to HIV testing, 221 (27.8%) were concordantly positive and 430 (54.2%) were concordantly negative. Eighty-three couples (10.4%) were discordant with a HIV-positive woman and HIV-negative man; 60 (7.6%) couples had an HIV-positive man and HIV-negative woman. Eligible discordant couples, where the woman was HIV-positive, were less likely to enroll in ZEBS (55.4% enrolled) compared with eligible HIV-concordant couples (73.3% enrolled, $P = 0.003$); however there was no difference in NVP uptake by concordance status ($P = 0.73$).

Disclosure of HIV status among women enrolled in ZEBS

Enrollment into ZEBS was significantly higher among couple-counseled HIV-positive women than among those counseled alone (68 versus 31%; $P < 0.001$). Of the 770 women enrolled into the trial, 445 delivered a live-born child and were randomized more than 6 months before the data were assembled. Thirty-six had not completed their 6-month visit because the mother or child had died, 46 were lost to follow-up, and 39 missed the visit. There were no significant differences between women who completed the 6-month visit and those who did not.

Of the 324 women enrolled in ZEBS with 6-month data available, 91 (28.1%) had been couple-counseled during their antenatal clinic visits. Of the 233 individually-counseled women, 83 (35.6%) reported at enrollment into the trial that they had disclosed their HIV status to their husband or partner. By the 6-month visit, an additional 74 of 150 (49.3%) originally non-disclosing women counseled individually had disclosed. Of the couple-counseled women, 22 of 91 (24.2%) reported disclosing their HIV status by 6 months to at least one person. Of the individual-counseled women, 73 of 233 (31.3%) reported disclosing to at least one person other than their husband, and including their husband 181 of 233 (77.6%) had disclosed to at least one person by 6 months. HIV-negative women were much more likely to disclose their

infection status to their partners. Of then 30 HIV-negative control women enrolled, 25 (83.3%) disclosed their status to their partners by enrollment; 29 (96.7%) women had disclosed by the 6-month visit.

HIV-positive women who had received couple counseling were more likely to be living with their partner and to have symptomatic disease (clinical stage III of HIV). Among the individual-counseled women, those who disclosed their HIV status were more likely to be married and living with their partner than those who had not. No other differences were noted between couple- versus individual-counseled women who had and had not disclosed (Table 2).

Reported adverse social events by 6 months post-partum

Overall, 28% of HIV-positive women reported at least one adverse social event by 6 months post-partum. Only one statistically significant difference in reported adverse social events occurred between the three groups: couple-counseled women were more likely to report physical violence by their partner in comparison with women who never disclosed to their partners. However, this finding was not significant when the analysis was restricted to women who were living with their partners. Of those living with their partners, seven of 88 (8.0%) in group 1, six of 137 (4.4%) in group 2, and one of 39 (2.6%) in group 3, reported physical violence from their partner. There was a slight trend towards less reported verbal abuse among those who never disclosed their status but this did not reach statistical significance. Reports of other adverse social events were similar across the three groups (Table 3). Of the 30 HIV-negative women, five (16.7%) reported an adverse event in the previous 6 months compared with the 91 (28%) HIV-infected women ($P = 0.17$).

No differences across the three groups were found when stratified by possible confounders, including marital status, education levels of the woman and her partner or socio-economic factors.

Although there was no difference between discordant and concordant couples in report of verbal or physical abuse, or violence from others, there was a trend towards higher levels of divorce or separation among discordant couples.

Some adverse social events were associated with socio-economic and health factors. Women reporting violence from persons other than their partner were likely to be slightly younger (24.2 versus 26.2 years;, $P = 0.05$). Living with the partner and/or receiving financial assistance for the child from the partner was associated with less separation/divorce within 6 months of VCT ($P = 0.006$ and $P < 0.001$, respectively). Women with clinical stage III disease were more likely to report being forced to leave the home ($P = 0.02$) and separation or divorce ($P = 0.05$).

Discussion

With the increase in pMTCT programs, antenatal clinics may seem an appropriate place to extend VCT services to include spouses as part of couples counseling. By our experience with modest community outreach and education, couple counseling can be successfully incorporated into antenatal VCT services, albeit at a modest rate. Only 10% of women were able to encourage their husband’s participation, and so programs actively encouraging male involvement should anticipate the majority of VCT will be directed to individual women. Nonetheless, the concern that disclosure inherent in couples counseling may increase the likelihood of adverse social outcomes was not supported by the findings reported here. Programs need to identify strategies that empower women to make decisions about HIV testing and pMTCT interventions in the absence of their partners, such as ‘opt-out’ strategies [18, 19].

Uptake of HIV testing among couples was high, justifying the effort to solicit male participation. However, couples probably represent a group that is more motivated to come to the clinic specifically seeking counseling and the high uptake within this group may therefore have limited generalizability. Even in this more motivated group, we did not observe a benefit for uptake of NVP. The relatively low uptake of NVP (67.5%) and the failure of improvement with couple counseling is disappointing and suggests that refusal of NVP may be unrelated to partner disclosure. Other antiretroviral drug interventions for pMTCT that require more prolonged regimens may necessitate disclosure to a greater extent and may be more amenable to improvements by couple counseling.

HIV-seroprevalence was higher among women counseled as part of a couple (37.6%) than among women counseled alone (27.4%). Women counseled more than once were significantly more likely to test HIV-positive, suggesting that women who previously tested HIV-positive or suspected HIV infection, were more successful in bringing their partner to VCT. This may also explain the higher rate of positive RPR and dual HIV/RPR infection among the couples-counseled women. As much as 28% of the pregnant women tested may have had biologic false-positive reactions known to occur during pregnancy [20].

Granting women the option to test more than once may help them to enlist their husband into couple counseling. A noteworthy number of couples had discordant HIV status (18.0%) providing an important opportunity for prevention counseling. Other studies among discordant couples have found improved communication about sexual matters and increased condom use after couple counselling [1–3,21]. Moreover, prevention counseling has been associated with lower rates of HIV transmission in discordant couples [2,3].

We had hypothesized that couple counseling would reduce adverse social outcomes associated with disclosure of HIV status. Unfortunately, adverse social events were reported in all groups, regardless of disclosure or counseling status. Population-based surveys in Lusaka have described very high rates of reported physical violence against women (26% in the prior 12 months) [15]. Lower adverse-event rates reported here may be due to differing survey methodology and specific circumstances that are not directly comparable to women participating in community-wide surveys [15]. Accurate measurement of sensitive social information is a challenge and women may be reluctant to report these events in the relatively non-anonymous setting of a cohort study. Nevertheless, our data suggest that couple counseling is not associated with any increased risk.

Although there was a slight trend towards increased reporting of some adverse social events with disclosure of HIV status, we did not observe a statistically significant increased risk once we adjusted for cohabitation or marital status. Our results may over-estimate adverse consequences of disclosure as these events may have been under-reported among women who did not disclose their HIV status. Although we did not collect pre-test adverse event information and therefore cannot comment on the direct effect of disclosure of HIV status *per se*, we did observe a trend towards fewer adverse events among the 29 HIV-negative women who did disclose their status to their partner.

Within couples, we did not observe discordance in HIV status to be associated with any changes in the risk of adverse social events. There was a slight trend towards higher levels of divorce or separation among discordant couples, which requires evaluation with more detailed and qualitative data.

As clinical illness becomes apparent (clinical stage III), women were more likely to report being forced from the home, separated or divorced. This may have been due to the spouse or other family member's perception of illness, fear of increased HIV transmission and/or the inability to care for the woman. As we only examined adverse social events at 6 months after

delivery, our inferences about later time points are limited. As disease stage progresses, the consequences of disclosure may differ.

The pMTCT programs in developing areas are often implemented in the context of high background levels of interpersonal violence and poverty and where HIV infection is highly stigmatizing. These social contexts raise many challenges for program implementation. As practiced in our particular setting, couple counseling appeared to be insufficient on its own to reduce adverse outcomes. The quality and extent of the counseling may need to be improved, more community-oriented interventions developed, and activities to assist community mobilization around HIV may be beneficial. Nevertheless, adverse social events were not increased in the couple-counseled group despite the demands of disclosure intrinsic to this counseling strategy. Further research is needed to develop and evaluate community and individual interventions to help ameliorate the complex social issues confronted by men and women living with HIV.

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Table 1

Comparison of 9409 women who were counseled about HIV testing with their partners (couples) or counseled as individuals at two antenatal clinics in Lusaka, Zambia between 27 April 2001 and 28 February 2003.

Characteristic	Woman and partner counseled (couples) *N* (%) [a]	Woman counseled as individual *N* (%)	*P*-value
Among all women counseled	868	8541	
Accepted HIV testing	833 (96.0)	6784 (79.4)	< 0.0001
Age in years	23 (20–27)	22 (20–27)	0.12
Attended some secondary school[b]	302 (34.8)	2967 (34.7)	0.97
Number of previous pregnancies	1 (0–2)	1 (0–2)	0.16
RPR-positive[c]	180 (22)	498 (7.5)	< 0.0001
HIV-positive (if accepted testing)	313 (37.6)	1856 (27.4)	< 0.0001
Received HIV test result (if accepted testing)	828 (99.4)	6695 (98.7)	0.08
Co-infected with HIV and syphilis[d]	83 (10.2)	241 (3.7)	< 0.0001
Among HIV-positive women who received results	311	1830	
Accepted maternal nevirapine tablet to take home	210 (67.5)	1170 (63.9)	0.22
Enrolled in the infant feeding trial	211 (67.9)	559 (30.5)	< 0.0001
Among all men counseled	868		
Accepted HIV testing	798 (91.9)		
HIV-positive (if accepted testing)	281 (35.2)		
RPR-positive[e]	97/775 (12.5)		
HIV results among couples where both individuals agreed to test	794		
Female +/Male +	221 (27.8)		
Female +/Male −	83 (10.4)		
Female −/Male +	60 (7.6)		
Female −/Male −	430 (54.2)		

[a] For categorical variables, the numerator(N) and the percentages (%) are displayed; for continuous variables the medians and interquartile ranges are displayed.

[b] Education data were missing for one woman in the couples group and nine women in the individual group.

[c] Syphilis screening test [rapid plasma reagent (RPR)] results were missing for 50 in the couple and 1931 in the individual groups.

[d] HIV and syphilis results were available on 7325 women, 816 women in couples, 6509 individual women.

[e] 97% (n = 775) of men in couples were tested for syphilis.

Table 2

Baseline characteristics of 324 HIV-positive women enrolled in Zambian Exclusive Breastfeeding Study (ZEBS) by whether antenatal counseling was couple or individual and by disclosure of HIV status to their husband or partner by 6 months postpartum.

Characteristic *n* (%)	Couple counselling: group I *N* = 91	Individual counseling		*P*-value		
		Disclosed status: group II *N* = 157	Did not disclose status: group III *N* = 76	Groups I vs II	Groups II vs III	Groups I vs III
Social						
Married	89 (97.8%)	145 (92.4%)	41 (53.9%)	0.07	< 0.0001	< 0.0001
Living with husband/ partner	88 (96.7%)	137 (87.3%)	39 (51.3%)	0.01	< 0.0001	< 0.0001
Education						
Some secondary school for woman	35 (38.5%)	77 (49.0%)	38 (50.0%)	0.11	0.89	0.14
Some secondary school for partner[a]	66 (75.9%)	105 (75.0%)	53 (85.5%)	0.88	0.10	0.15
Economic						
Woman employed	26 (28.6%)	57 (36.3%)	22 (28.9%)	0.21	0.27	0.96
Husband/ partner employed	77 (84.6%)	141 (89.8%)	62 (81.6%)	0.23	0.08	0.60
Electricity in home	26 (28.6%)	59 (37.8%)	34 (44.7%)	0.14	0.31	0.03
Indoor water source	17 (18.7%)	29 (18.5%)	18 (23.7%)	0.97	0.35	0.43
Obstetric/medical						
HIV/AIDS Stage III[b]	55 (60.4%)	74 (47.1%)	37 (48.7%)	0.04	0.82	0.13
Median baseline CD4 cell count ($\times 10^6$ cells/l)	372	366	341	0.40	0.29	0.79
Study compliance: > 80% attendance to 6-month visit	84 (92.3%)	138 (87.9%)	64 (85.5%)	0.37	0.13	0.21

[a] Missing answers from husband's education: group 1, *n* = 4; group 2, *n* = 17; group 3, *n* = 14.

[b] World Health Organization Stage III HIV Infection & Disease Criteria: diarrhea, cough, fever > 30 days; shingles, severe rash, tuberculosis, oral candidiasis [17].

Table 3

Reported adverse social events among 324 HIV-positive women by whether antenatal counseling was couple or individual and by disclosure of HIV status to their husband or partner by 6 months postpartum.

Report	Couple counselling: group I *N* = 91 (%)	Individual counseling		*P*-value		
		Disclosed status: group II *N* = 157(%)	Did not disclose status: group III *N* = 76 (%)	Groups I vs II	Groups II vs III	Groups I vs III
Verbal abuse from partner	16 (17.6)	25 (15.9)	8 (10.7)	0.74	0.27	0.20
Physical violence by partner	8 (8.8)	7 (4.5)	1 (1.3)	0.17	0.22	0.03
Separated or divorced	7 (7.7)	13 (8.3)	6 (7.9)	0.87	0.92	0.96
Forced to leave home	10 (11.0)	13 (8.3)	8 (10.5)	0.48	0.58	0.92
Violence from others	8 (8.8)	13 (8.3)	9 (11.8)	0.89	0.38	0.52
Threatened or intimidated	12 (13.2)	19 (12.1)	10 (13.2)	0.80	0.82	0.99
Any adverse social event	28 (30.8)	42 (26.8)	21 (27.6)	0.49	0.88	0.66